“Identifying parameters for customers for mobile operator selection- A study of Andhra Pradesh”

A thesis submitted to the University of Hyderabad in partial fulfilment for the Award of the Degree of

DOCTOR OF PHILOSOPHY

By

SANDEEP DONGRE

SCHOOL OF MANAGEMENT STUDIES

University of Hyderabad
Telangana
India

May 2016

DECLARATION

I, **SANDEEP DONGRE**, hereby declare that the thesis entitled, "**Identifying parameters for customers for mobile operator selection- A study of Andhra Pradesh"**, submitted by me under the guidance and research supervision of **Dr. SAPNA SINGH**, is a bonafide research work which is free from plagiarism. I also declare that it has not been submitted previously in part or in full to this University or any other University or Institution for the award of any degree or diploma. I hereby agree that my thesis can be deposited in Shodganga/INFLIBNET.

Date: 9th May, 2016

Place: Hyderabad

Name of the Student: Sandeep Dongre

Signature of the Student:

Regd. no: 09MBPH05

CERTIFICATE

This is to certify that this thesis entitled, "Identifying parameters for customers for mobile operator selection- A study of Andhra Pradesh", submitted by SANDEEP DONGRE bearing Reg. No. 09MBPH05, in partial fulfilment for the award of the degree of Doctor of Philosophy in Management Studies, is a bonafide work carried out by him under my supervision and guidance as prescribed under Ph.D. ordinances of the University.

The thesis has not been submitted previously in part or in full to this or any other University or Institution for the award of any degree or diploma.

Dr. SAPNA SINGH

Associate Professor
School of Management Studies,
University of Hyderabad

Prof. B. RAJASHEKHAR
Dean
School of Management Studies,
University of Hyderabad

ACKNOWLEDGEMENT

The completion of my Thesis work gives me immense satisfaction. This completion was really difficult for me to achieve and I did step back at quite a few moments during the course of my preparation. I even had to take a break from thesis work because of my transfer to Delhi and it became unfeasible for me to manage. The fact that I am writing this acknowledgement only means that I could finally complete this task after overcoming several hurdles which tried pulling me back. I was able to overcome these hurdles only because I had a solid support system and different people at different stages helped ensure that I smoothly sailed through this tide. It is with immense gratitude that I acknowledge that it was only because of their support that I could complete this Thesis.

I am indebted to my Guide Dr. Sapna Singh, who really went out of her way to accommodate my rigorous travel schedules and showed willingness to review my work at regular intervals. I thank her for sharing her expertise and experiences with me. She devoted considerable time and efforts reading the chapters, giving me worthy comments and suggestions for improving my thesis.

I owe my deepest gratitude to Prof. Sita Mam who was willingly helpful whenever I approached her for the issues I was facing. She kept me reminding at every stage not to give up and keep going. She made it a point to take out time from her grueling work as the Dean and read through my Chapters. Her constant encouragement for continuance of my work kept me going. I thank Venkata Ramana Sir for his precious guidance during the time when I needed most

I am thankful to Rajsekhar Sir, DEAN who suggested giving a Consumer orientation to my thesis work as against the Company orientation which I had earlier adopted.

I am extremely thankful to Chetan Sir for showing willingness to guide a complete novice person like me in the field of research and help me firm my fundamentals when I did not know much

I express my sincere thanks to Doctoral Committee members – Prof. B. Raja Shekhar, Prof. V. Venkata Ramana and Dr. Mary Jessica, School of Management Studies, University of Hyderabad, for their continuous evaluation by providing invaluable inputs during different stages of the research work.

I will fail my duties if I do not mention my colleagues who have become life-long friends during the process of thesis completion. I would especially like to thank Dr. Nidhi for taking time out of her job and reading my thesis work and giving valuable suggestions. I am also thankful to Dr. Nazia, Ramulu, Urmila and others for being there to help me.

Finally, my deep and sincere gratitude to my family for their continuous and unparalleled love, help and support. I am grateful to my wife Archanaa for always being there and my kids- Riiya and Taashi, whose mere presence would rejuvenate me. I am forever indebted to my parents, my sister for always being a friend, my brother and In-laws who selflessly encouraged me to explore new directions in life and seek my own destiny. This journey would not have been possible if not for them, and I dedicate this milestone to them.

List of Abbreviations

TSPs	:	Telecom Service Providers
VAS	:	Value Added Services
CDMA	:	Code Division Multiple Access
GSM	:	Global System for Mobile Communication
SMS	:	Short Message Service
CRBT	:	Caller Ring Back Tone
WAP	:	Wireless Application Protocol
ISP	:	Internet Service Provider
SBU	:	Strategic Business Units
DTH	:	Direct To Home
IPTV	:	Internet Protocol Television
DAMA	:	Demand Assigned Multiple Access
PAMA	:	Permanentiy Assigned Multiple Access.
MPLS	:	Multi Protocol Label Switching
BRCS	:	Basic Reference Coordinate System
RSV	:	Resource Reservation Protocol
GSMA	:	GSM Association

Table of Contents

List of Tables

List of Figures

CHAPTER I

INTRODUCTION

1. Introduction

The telecom services are world over known as vital mean of nation's socio-economic development. It is recognised as one of the key support services desired for fast development and transformation of different economy segments. Indian telecommunication sector is revolutionised through noteworthy policy reforms, predominantly when NTP 1994 is been announced and afterward it was re-stressed and conceded forward under NTP 1999. The telecom Industry has its major role in present scenario of information and modernisation. Industry is revolutionizing about 165 year old communication process by delivering voice and data services at fast and cumulative speed thus major driver of economic growth in India.

1.1 Telecom Industry- An Evolution

Table 1.1: Important Milestones in evolution of telecom industry

Year	India Telecommunication-History
1851	First operational land line set by government
1881	Telecommunication services were introduced
1883	Postal system integrated with the telecommunication system
1923	Establishment of IRT (Indian Radio Telegraph company)
1932	ETC and IRT are Integrated
1947	Monopoly was of ministry of communication. Nationalization of Posts, Telephone and Telegraph (PTT)
1985	Department of Telecommunications (DOT) to provide domestic and long-distance service which was different from the postal system
1986	DOT made into 2 entities 1) the Videsh Sanchar Nigam Limited (VSNL) -- international telecommunications 2) Mahanagar Telephone Nigam Limited (MTNL) -- service in metropolitan areas.
1986-2016	Evolution of 1G, 2G, 3G, 4G

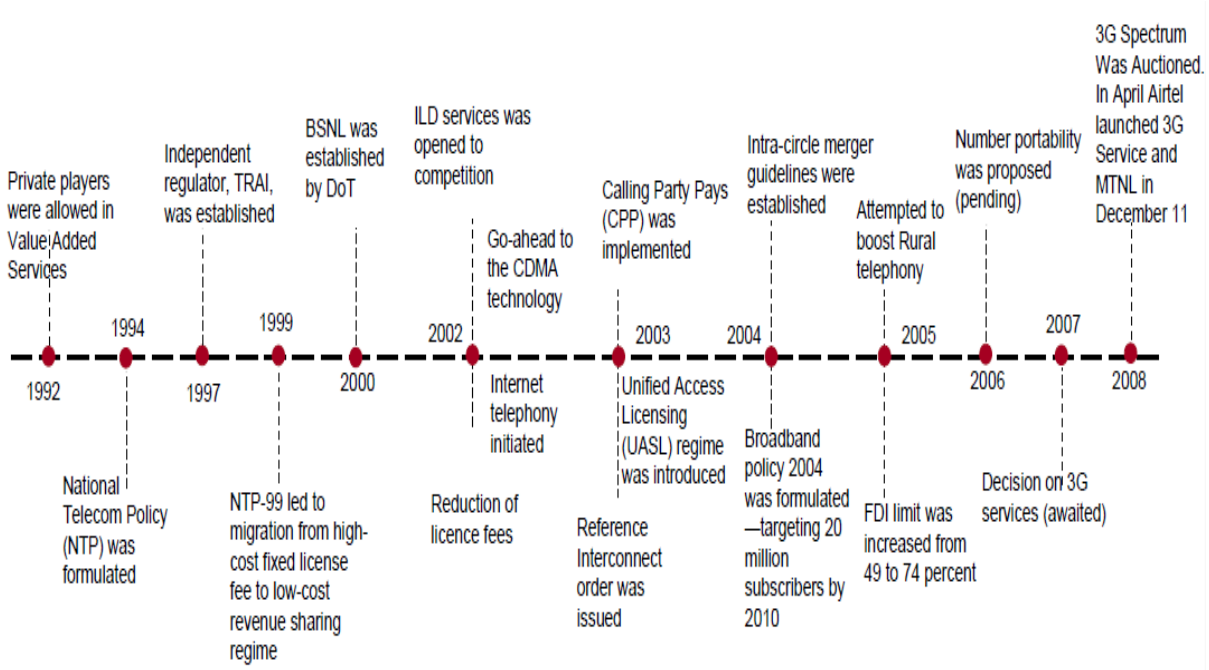
(Source: Compiled by Author)

1.1.1 Comparison between 1G, 2G, 3G, 4G

Table 1.2: Comparison between 1G, 2G, 3G, 4G

Comparison between 1G,2G,3G & 4G				
Generation	**Time Period**	**Definition**	**Characteristics**	**Speed**
I (1G)	1980-1990	Analog	Voice only	14.4 Kbps (peak)
II (2G)	1990-2006	Digital narrow band circuit data/packet data	Data along voice, MMS, web browsing.	56Kbps to 115 kbps
III (3G)	2006-2011	Digital broadband packet data.	Universal access, portability, Video calling	5.8 Mbps to 14.4 Mbps
IV (4G)	Now (Upcoming)	Digital broadband packet very high throughput	HD streaming, portability increased to Worldwide roaming.	100 Mbps to 1 Gbps

1.1.2 Post-liberalization era- regulations and laws in the Indian telecom industry



(Source: www.dot.gov.in)

Figure 1: Indian telecom Industry post-liberalization era

Indian telecom sector is completely transformed in the last decade and this transformation and modernisation is driven by several policy initiatives. In last few years telecom sector has attained remarkable growth and is assured for immense rise in the future.

1.1.3 Industry Sector

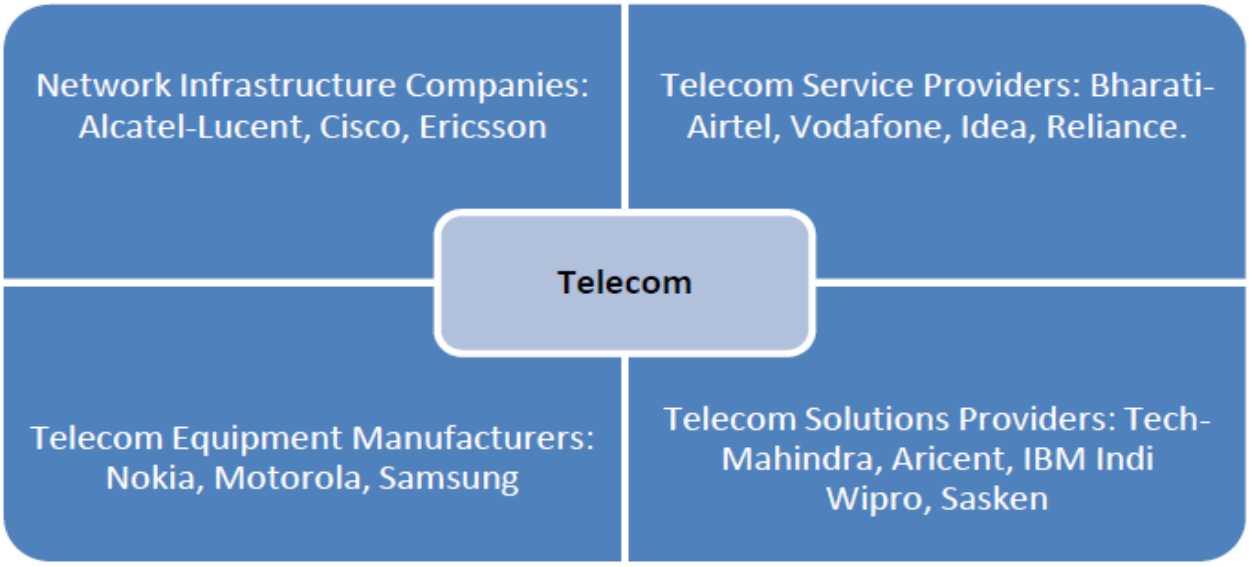


Figure 1.2: Telecom Industry Sector

(Source: Telecom Industry, Business Environmental Domain Study, by Anjana et. al)

To have a universal point of view the Indian telecom industry can be divided into 4 parts. Service providers are the first part and major forces in Indian telecom industry. Second part is major telecom equipment suppliers has own R&D centres. International players have started manufacturing mobile devises in India. The discussion in this research has main focus to only Telecom Service Providers.

1.2 Telecom Regulatory Authority of India (TRAI)

The entry of private service providers brought with it the inevitable need for independent regulation. The Telecom Regulatory Authority of India (TRAI) was, thus, established with effect from 20th February 1997 by an Act of Parliament, called the Telecom Regulatory Authority of India Act, 1997, to regulate telecom services, including fixation/revision of tariffs for telecom services which were earlier vested in the Central Government.

As mandated by TRAI, an important aspect of TRAI's functions is to make recommendations to the Government on diverse subjects including market structure and entry of new operators in the sector, the licencing framework, and management of scarce resources such as spectrum, consumer safety and security. Under this mandate, several significant policy regulatory recommendations were made during the year which include Recommendations on 'Valuation and Reserve Price of Spectrum for Auction in different bands of spectrum', 'Full Mobile Number Portability' 'Availability of Spectrum', 'Liberalization of Usage', 'Spectrum Usage Charges', 'Spectrum Trading' etc.

Unified Access Service License Regime (UASL): The establishment of the Unified Access Licensing Regime (2003) eradicated the requirement for different licenses for different services. Unified licensing marked the end of the license regime in the Indian telecom industry. It facilitates alignment of convergent technologies and services. Players in the sector are now permitted to offer both mobile and fixed-line services under a single license after paying an additional entry fee.

Universal Service Obligation (USO): This system was put in place to bridge the wide gap between urban and rural tele-density. Though, it increases the cost burden for the telecom companies, USO helps build telecommunication infrastructure in the rural areas.

1.3 New Telecom Policy 1999

The NTP-1999 was passed on March 26th 1999 and implemented from 1st April 1999 which proved as most important milestone. This policy transformed telecom reforms in India. This policy opened the doors for private players. This initiates the need for clearly defining rules and regulations by restructuring public sector and separating private sector licencing & policies. It also helps in issue redressal of operators.

1.3.1 National Telecom Policy 2012

National Telecom Policy-2012 was made to ensure better quality and improved services to rural areas imparting effective role of Indian telecom sector in transforming the socio-economic condition through inclusive growth. This policy highlights that use of technology

would help in solving issues relating to education, health, employment generation, financial inclusion etc.

1.3.2 Mobile Number Portability (MNP)

27.32 million Subscribers have submitted their porting requests during the year 2013-14 to different service providers, for making use of MNP facility. MNP requests increased from 89.70 Mn customers at the end of March 2013 to 117.01 Mn at the end of March 2014. In May2015, a total of 3.24 Mn people submitted their requests.

For MNP application, Service areas are divided in zones; Northern and Western India, the highest number of requests till date came from Rajasthan (plus 15.13 million) followed by Gujarat (about 12.97 million) at 2nd place. In South and East India MNP zone, the highest number of applications came from in Karnataka. The status of MNP requests in various service areas:

1.4 Trends in Tele-density

The Tele-density of India increased from 5% in year 2003 to 77% in year 2015. The urban area density increased to 140% while rural area density increased to 40%.

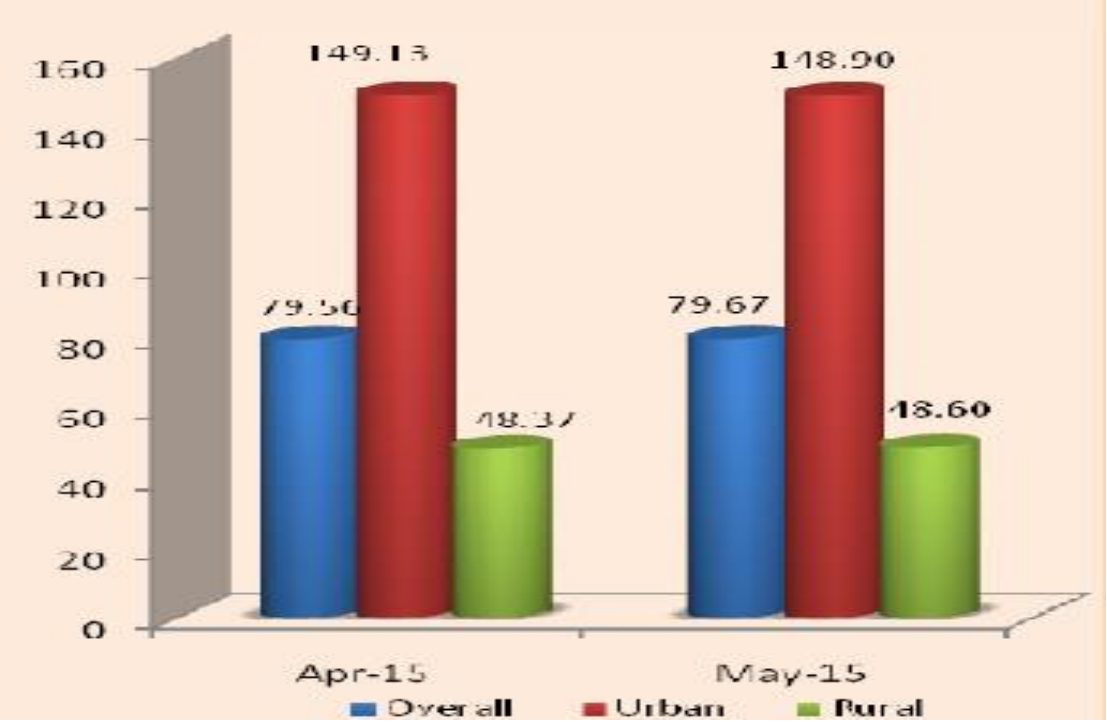
1.4.1 Current scenario

In India telephone subscribers increased from 957.61 million by September, 2014 to 962.63 million by October, 2014, an increase of 0.52%. During the same period the urban subscribers increased from 569.56 mn to 570.58 mn and the rural subscribers increased from 388.05 mn to 392.05 million with the monthly growth rates of 0.18% and 1.03%.

The overall Tele-density for end of September to the end of October in India increased from 76.75 to 77.07. Whereas the Tele-density in urban areas improved from 148.07 to 148.10 and Tele-density in rural increased from 44.96 to 45.39. The share of urban vs rural subscribers were 59.27% and 40.73% respectively.

Table 1.3. Circle wise overall tele-density at the end of October 2015

All India	77.07
Assam	50.71
Bihar	48.33
Madhya Pradesh	57.52
J&K	70.97
UP	57.86
Odisha	63.93
North East	72.72
Rajasthan	76.51
Andhra Pradesh	81.53
West Bengal	73.81
Haryana	80.79
Gujarat	93.56
Maharashtra	92.43
Karnataka	94.56
Kerala	96.29
Punjab	103.88
Himachal Pradesh	110.24
Tamil Nadu	115.16
Delhi	233.42



(Source: Press Release No. 39/2015, July-2015, TRAI, New Delhi)

Figure 1.3: Overall Tele-density in India

1.4.2 Overall Tele-density

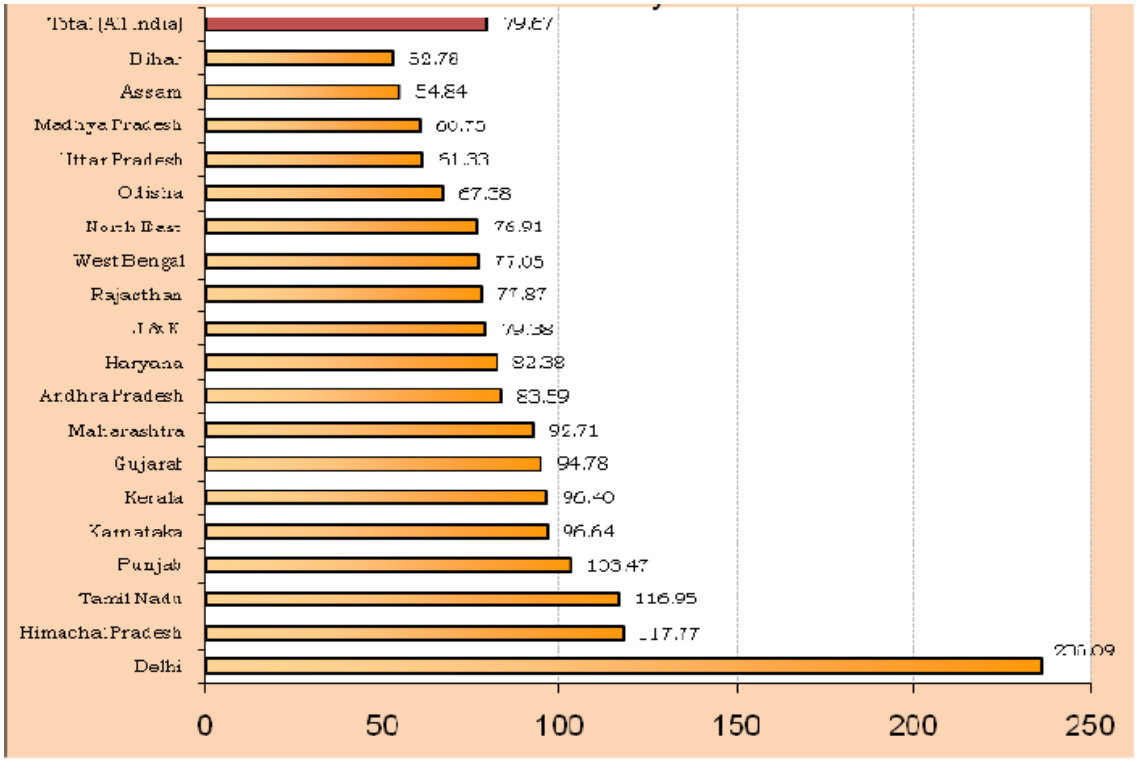


Figure 1.4: Overall Tele-density circle / state wise as on May 2015

(Source: Press Release No. 39/2015, July-2015, TRAI, New Delhi)

1.5 Indian Telecommunications at a Glance

1.5.1 Composition of telephone subscribers in India

Wireless segment comprises 96.9 per cent of total telephone subscriptions in India, thus dominating the market, whereas the rest is accounted for by wireline segment

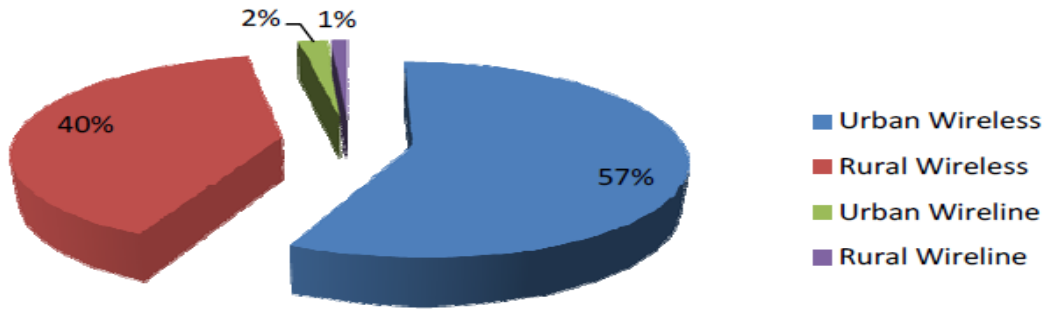


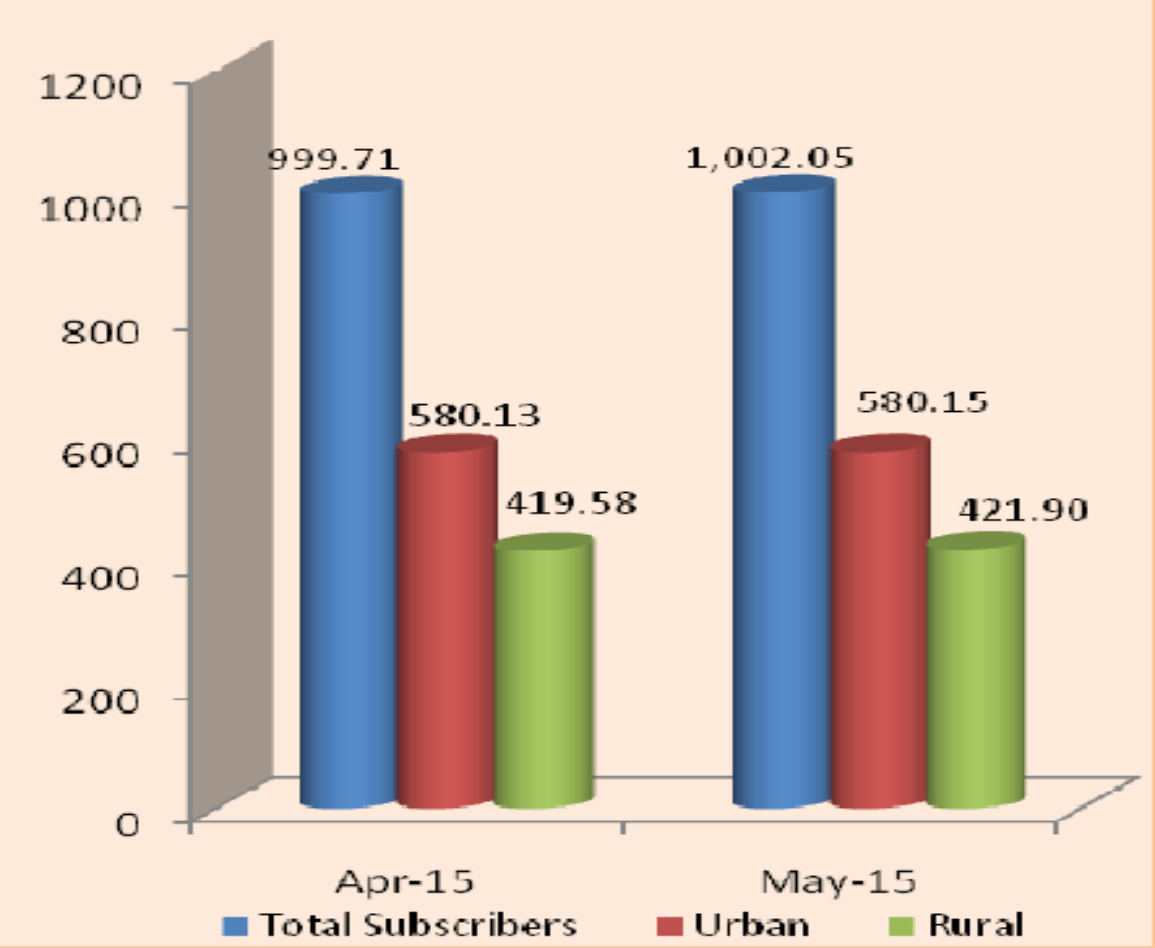
Figure 1.5: Proportion of Telephone Subscribers in India

Table 1.4: Telecom Subscription figures as on May 2015

Heading	Wireless subscribers	Wireline subscribers	Total subscribers Wireless &
Total Subscribers (Million)	975.78	26.27	1,002.05
Total Net Addition (Million)	2.44	-0.10	2.34
Growth Rate-monthly	0.25%	-0.36%	0.23%
Urban Subscribers (Million)	558.83	21.32	580.15
Net Addition of urban subscribers (Mn)	0.05	-0.03	0.02
Monthly Growth Rate	0.01%	-0.16%	0.003%
Rural Subscribers	416.95	4.95	421.90
Rural Subscribers Net Addition	2.38	-0.06	2.32
Monthly Growth Rate	0.57%	-1.22%	0.55%
Overall Teledensity	77.58	2.09	79.67
Urban Teledensity	143.42	5.47	148.90
Rural Teledensity	48.03	0.57	48.60
Share of Urban Subscriber	57.27%	81.17%	57.90%
Share of Rural Subscriber	42.73%	18.83%	42.10%

(Source: Press Release No. 39/2015, July-2015, TRAI, New Delhi)

The telephone subscribers in India increased to 1002.05 Million at the end of May 2015 from 787.28 Million in December 2010, thereby registering a monthly growth rate of .23%. The share of Urban Subscriber is higher i.e. 57.90% than the share of Rural Subscribers i.e. 42.10%. Urban and rural monthly subscription growth rates were 0.003% & 0.55% resp. According to peak Visitor Location Register (VLR) (May 2015), the number of active wireless subscribers was 868.64 million.



(Source: Press Release No. 39/2015, July-2015, TRAI, New Delhi)

Figure 1.6: Total Telephone Subscribers in million

1.5.2 Wireless Subscribers

From April 2015 to May 2015 the subscriber base in wireless segment registered a growth of 0.25%, from 973.35 million to 975.78 million.

The urban area Wireless subscription increased from 558.78 million to 558.83 million and rural area wireless subscription in rural areas increased from 414.57 million to 416.95.

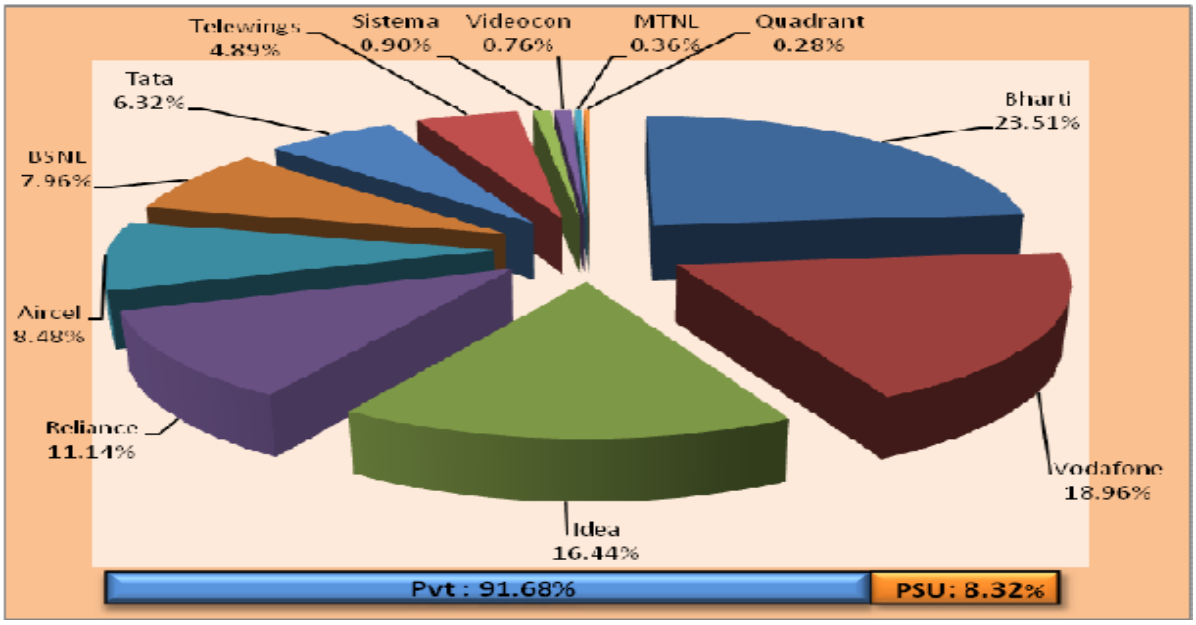
Wireless Tele-density in India in the same time increased from 77.46 to 77.58.

1.5.3 Key Market Players

In Telecom, the private players have a majority market share which has crossed 90% recently. The Private players include Bharti Airtel, Idea Cellular, Vodafone, Docomo,

Reliance etc. On the other hand, the public sector players like BSNL and MTNL have just 9% of total market share.

Service Provider wise Market Share in Wireless Subscribers

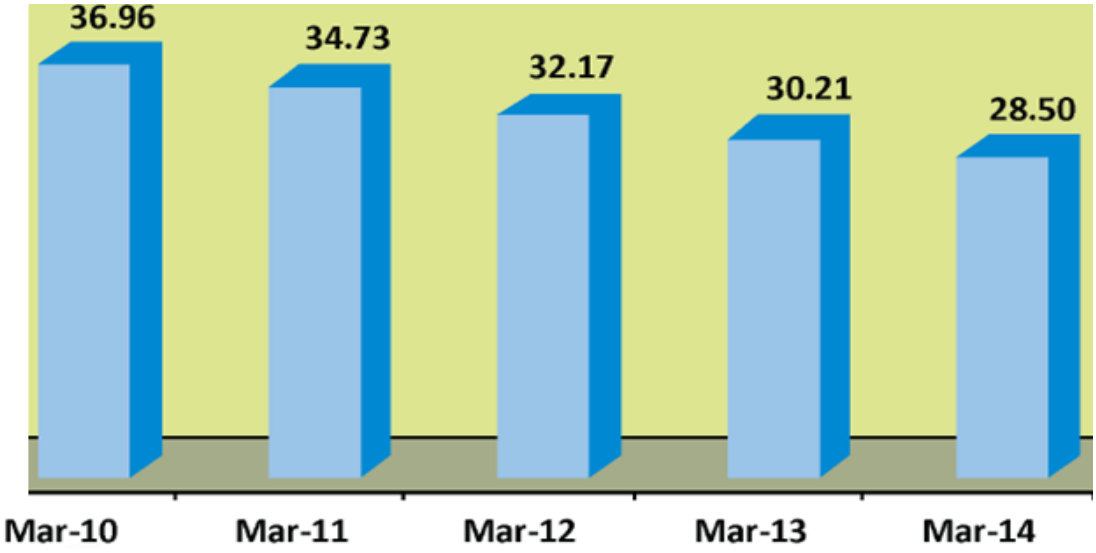


(Source: Press Release No. 39/2015, July-2015, TRAI, New Delhi)

Figure 1.7: Service Provider wise Market Share in Wireless Subscribers

1.5.4 Wireline subscribers

The wireline subscriber base was 28.50 mn in March, 2014 as compared to 30.21 mn subscribers in March, 2013, a decrease of 1.71 million during the 2013-14. In wireline subscribers, 22.54 million are urban and the remaining 5.96 million are rural. The status of the wireline subscribers in last 5years is as below:



(Source: Press Release No. 39/2015, July-2015, TRAI, New Delhi)

Figure 1.8: wireline subscribers of five year

1.5.5 Broad Band Subscribers

The department of telecommunications says, "Broadband is a data connection that is able to support interactive services including Internet access and has the capability of the minimum download speed of 512 kbps to an individual subscriber from the point of presence (POP) of the service provider intending to provide Broadband service." DOT increased the minimum download speed for the broadband services was from 256 kbps to 512 kbps and the wireless data services were also included in the revised definition of Broadband service

In India the Internet subscriber base in March 2014 stood at 251.59 million as compared to 164.81 million in March 2013. As per the revised definition the total broadband subscriber base in the country on March 2014 was 60.87 million in respect of 15.05 million on March 2013.

Table 1.5: Segment wise broadband subscribers and monthly growth rate

Segment	**Broadband Subscribers (in million)**		**Monthly growth rate (%)**
	As on April, 2015	**As on May, 2015**	
Wireline subscribers	15.52	15.56	0.23
Mobile users	84.79	88.96	4.19
Wireless-fixed subscribers (Wi-Fi, Wi-Max, Point-to-Point, Radio & VSAT)	0.44	0.44	-0.17
Total	**100.76**	**104.96**	**4.17**

(Source: Press Release No. 39/2015, July-2015, TRAI, New Delhi)

Top five service providers constituted 83.75% market share of total broadband subscribers by May 2015. These were Bharti Airtel (23.39 mn), Vodafone (21.27 mn), BSNL (18.50 mn), Idea Cellular Ltd (15.76 mn) and Reliance Communications Group (8.99 mn).

The top five Wired Broadband Service providers were BSNL (9.90 million), Bharti Airtel (1.45 million), MTNL (1.14 million), Atria Convergence Technologies (0.66 million) and YOU Broadband (0.45 million) and the top five Wireless Broadband Service providers were Bharti Airtel (21.93 million), Vodafone (21.27 million), Idea Cellular (15.76 million), Reliance Communications Group (8.88 million) and BSNL(8.59 million).

1.6 Elements of Telecom

There are two main competing network technologies in cellular service: Global System for Mobile Communications (GSM) and Code Division Multiple Access (CDMA). There is a need to understand the difference between GSM and CDMA which will further help in choosing a carrier for using preferable network technology as per needs.

1.6.1 GSM vs. CDMA

The two main competing network technologies used by cellular service providers' world over are GSM and CDMA. Understanding the advantages and disadvantages of both the technologies will help to make right decision according to the requirement.
GSM originated in Europe in 1990. The GSM Association is an international organization founded in 1987, for providing and overseeing the worldwide wireless standard of GSM. CDMA (Code Division Multiple Access) on other hand is a proprietary standard designed by Qualcomm Inc. in United States and has been the dominant network standard for North America and parts of Asia. It became an international standard in 1995.

Technology: For transmission and reception the mobile telecommunication systems uses frequencies above 800 MHz. All service providers operate as per international standards of frequency bands in some pre allocated.

Coverage: The most important factor is getting service in the areas you will be using your phone. Upon viewing competitors' coverage maps you may discover that only GSM or CDMA carriers offer cellular service in your area. If so, there is no decision to be made, but most people will find that they do have a choice.

Data Transfer Speed: With the advent of cellular phones doing double and triple duty as streaming video devices, podcast receivers and email devices, speed is important to those who use the phone for more than making calls. CDMA has been traditionally faster than GSM, though both technologies continue to rapidly leapfrog along this path.

Subscriber Identity Module (SIM) cards: GSM phones use SIM cards. The removable SIM card allows phones to be instantly activated, interchanged, swapped out and upgraded, all without carrier intervention. The SIM itself is tied to the network, rather than the actual phone. Phones that are card-enabled can be used with any GSM carrier. The CDMA equivalent, an R-UIM card, is only available in parts of Asia but remains on the horizon for the U.S. market.

Roaming: For the most part, both networks have fairly concentrated coverage in major cities and along major highways. GSM carriers, however, have roaming contracts with other GSM

carriers, allowing wider coverage of more rural areas, generally speaking, often without roaming charges to the customer. CDMA networks may not cover rural areas as well as GSM carriers, and though they may contract with GSM cells for roaming in more rural areas, the charge to the customer will generally be significantly higher.

A SIM card is the heart of the cell phone. It is equivalent to the phone plug that your desk phone at home plugs into. It carries vital information such as the phone number, the carrier that supplies it and accordingly the rates you will pay when placing or in some cases when receiving phone calls.

Based on the arrangement you have with your SIM card vendor or the cell phone carrier, the SIM card can be Post-paid or Prepaid. Post-paid SIM cards allow you to talk all you want and the cell phone carrier will log your calls and send you a bill at the end of each month. Understandably, the cell phone carrier will require a credit card on file and probably some form of credit approval since they will extend you the service ahead of being paid and the charges in one month can amount to hundreds of rupees depending on how much you call, where you call, when you call, and how long.

The convenient thing about prepaid SIM cards is that they are transparent to the user and the people calling him. Unlike calling cards, the SIM card once placed inside the phone acts exactly like a post-paid SIM card except in the way the calling costs are calculated and charged. Local SIM cards are SIM cards offered by wireless carriers in specific countries.

Telecom Distribution represents the steps needed to get services to customers, including transactions, logistics, and fulfilment. Distribution involves finding and motivating participants in the channel leading from production to delivery, covering geographical and vertical markets, and putting the products within reach of customers. The ability to customize channels to evolving customer locations and needs has created unprecedented information flows between sellers and buyers. This has led to the development of channels like organized retail, Post-paid channel etc.

1.7 Conclusion

The Indian telecom has experienced rapid growth. With India slated to have more 700Mn users out of the total 4.7billion in entire globe, India will lead the virtual world. This superlative growth in the Indian telecommunication sector is due to government's favourable regulations and introduction of 4G services.

Operators are expanding and are investing hugely on telecom infrastructure. International investment is increasing in Indian companies which make this sector to be an important contributor to economic growth. This development helps in services like security and surveillance, remote monitoring of ATM machines, home automation, traffic management, retail, logistics etc. with Increasing double incomes and spending power, the government is keen to develop rural telecom infrastructure for increasing rural telecom coverage; favourable investment & reforms will ensure that India's high potential is realized.

CHAPTER II

REVIEW OF LITERATURE

2.1 Indian Telecom Sector

With the advent of information technology, Indian telecom sector has become important and has a multiplier effect on the economy by way of contributing increased efficiency. This has made India an emerging economic super power.

Literature review is based on effective research, which cannot be achieved without studying what already exists in the form of overall literature and particular studies. Therefore, it is considered important for designing & executing research work. The review of existing literature helps to, identify research gap and formulate hypotheses & framework for further study. This chapter provides theoretical bases for the study which is reinforced by a discussion of previous studies, Companies news & articles, government reports on policies & strategies and existing research related to the topic.

This chapter is broadly divided into three parts; 1) literature related to growth and development of telecom sector, 2) other studies associated with customer preferences and 3) satisfaction further studies concerning to a telecom service provider and variables influencing choice of service provider. This review also aims to identify the customer's parameters of choice and further gaps in existing research and to frame questions and analysis to develop theory.

2.1.1 Growth and development of telecom sector

Not just basic telephone, India has seen speedy development in internet, value added services including mobile telephony. As global perspective changed in terms of economic structure, technology, marketing policies and competition resulting in massive transformation in India's growth. This driven revolution in Indian telecom sector which has major significant contribution in terms of GDP.

Amulya and Anand (2012) used secondary data for the study on Indian telecom industry. They underlined that the Indian telecom industry is the world's fastest growing industry with 851.70 million mobile phone subscribers as on June 2011. The researchers have highlighted that it is the second largest telecommunication network in the world, in terms of number of wireless connections after China. According to them, it is projected that India will have 1.159 billion mobile subscribers by 2013 end, and that global consultancies have indicated that the total number of subscribers in India will exceed the total subscriber count in China by that time. The industry is expected to generate employment opportunities for about 10 million people during the same period. The study is based on the 10 years of data collected through various reports of RBI, TRAI and DOT reports. The analysis has indicated a strong positive correlation (0.913) between revenue and subscriber base. As the subscriber base and total revenue has been proportionate, but at average revenue per user is declining due to reduction in tariff rates. The analysis has also indicated a strong positive correlation (0.915) between the population and subscriber base. The growth in population and the subscriber base has shown a linear growth trend over the years. The paper has analyzed the impact of privatization and competition on a comprehensive set of indicators of performance in the telecommunications sector in India during the past one decade. The results have shown that the privatization and competition have improved both performance and service quality. At the same time, a clear shift has been taking place from a state owned monopoly to more number of players.

Chadha & Kapoor (2009) opined that consumers tend to become more and more demanding with the competitive market place. Indian telecommunication service sector has been experiencing the highest growth rate in terms of subscribers and revenues. Consumers became more competitive with the increasing competition in cellular services. The main condition for protecting the subscriber base is to win customer loyalty. The Authors further analysed data of 220 GSM users of two cities of India by using regression analysis and attempts to examine the effect of switching cost, service quality and customer satisfaction on customer loyalty in the mobile telecommunication services. The results of the study show that the switching cost, service quality and customer satisfaction have positive association with customer loyalty. However, the customer satisfaction was found to be the best predictor of

customer loyalty. The author also suggested that in order to increase customer loyalty the service providers should maximize service quality.

The telecom association points out that the field is now open to technology providers to bring out innovative, cost effective technologies for base station up gradation. One industry in particular the chip manufacturers is scrambling for attention in the telecom equipment market, offering intelligent chips which can perform multiple functions and even integrate some of the functions, traditionally done by the software, on the silicon itself**.** Customers also need to have devices which are 4G compliant and dongles to support this network. The onus is now on tech providers to provide gear which involves low installation costs, can be upgraded and has the capacity to handle heavy throughput. "The capex and opex challenges faced by the telecom industry can only be mitigated by the use of state of-the-art semiconductor and packaging technologies.

Economic Times (November 15, 2012) expressed that for the telecom sector it is the regulatory extension, has got partly addressed. One, on spectrum reframing and the associated cost for the 900 MHz spectrum, and the second is license fee that the government will charge whenever the license renewal is completed in two year time. So the hope for this auction will provide some sort of benchmark for some obvious things. The market is somewhat positively inclined looking at the fact that there was no irrational building in the sector. Reliance did not show its stand. So those issues have got partly addressed and now the market is probably focusing on the fact that the competitive intensity, which has been in the industry, could start seeing some decline. Balance sheet, which was looking very venerable for most of these companies, is not going to get as much damaged if the auction had been hugely successful.

Economic Times (November 26, 2012) indicated that the telecom sector in India looking to 4G up gradation: Semiconductor companies come up with innovative and low-cost technology. Telecom service-providers, stinging in tough peer competition and high spectrum charges, have now got to upgrade their base stations to offer 3G and 4G facilities to maintain their competitive edge and cater to the high data and voice traffic demands.

Jain (1997), the author underlined the proposed structure, scope and functions of TRAI in the context of some of the critical issues facing the Indian telecom sector and analyzed role of TRAI in addressing these issues. Further study discussed that with the

setting up of TRAI, the government has taken up a much awaited regulatory reform. By leaving the scope of the individual function wide and not detailing the mechanism, TRAI has been given a lot of flexibility to ensure fulfilment of its objectives. The future shape of telecom sector, the role of private participation will be determined by how TRAI sets up process and Systems. The study also focused that there is an urgent need for TRAI to initiate studies and debate on mechanism to handle contentious issues such as choices, mechanisms for private participation and decision-making processes.

The study also highlights the need to address telecom regulatory reforms in the overall reform framework and the role of other related legislation In supporting telecom regulation.

Khan and Chaturvedi (2006) describe that service providers took new initiatives to customers as the competition in telecom area increased.

Marine and Blanchard (2005) ascertains the explanations for the unexpected boom in communication resources. According to them, the boom in mobile telephone networks is largely based on the Global System for Mobile Communication (GSM) standard. In developing countries fixed lines are less compared to mobile phones. Boom in communication resources, is ultimately an indicator of a country's economic and social situation resulting in benefit of rural areas, sub-urban and urban areas. An upheld economy can make it promising to release a fund for the construction of appropriately dimensioned telecommunication infrastructures.

Miettila and Moller (1990) in their research he emphasized that the success of the mobile commerce can be attributed to the personal nature of wireless devices. Further adding to this voice and data transmission are its unique features.

Mitra (2005) analyzed various factors contributing to competition to Indian Telecom Industry. Lowering of prices is the major factor contributing to the competition among service providers. Along with this increased efficiency, greater innovation, high-tech industry, better quality, improved services are some of the reasons which are boosting competition amongst various telecom service providers.

National Telecom Policy (1999) the introduction of the New Telecom Policy in 1999, in cellular services Indian telecom industry has witnessed speedy growth. According to the report to achieve India's vision of becoming an IT superpower along with developing a world class telecom infrastructure in the country, there was a need to develop a new telecom policy framework with the objective;

- Make available, telephone on demand by 2002 and achieve a teledensity of 7% by 2005 and 15% by 2010
- Encourage development of telecom in rural areas by developing a suitable tariff structure so that it becomes more affordable and by also making rural communication mandatory for all fixed service players and thus achieve a rural teledensity of 4% by 2010 and provide reliable transmission media in all rural areas.

Second half of the nineteenth century is evident in Indian telecom sector for fixed-line telephone services; later in 1995 licenses for mobile phone services were issued. Mobile telephony is not very old service in India but unveiling continuous growth. However, the presence of global players in the market and reducing tariffs are leading industry towards possible association and larger players eyeing on smaller players for mergers and acquisitions. The introduction of 3G (Third Generation) and 4G (Fourth Generation) services and increased cost of spectrum has put challenges for smaller players of either increasing their competences or joining hands with the larger players or global service providers.

National Telecom Policy (NTP) of India (2012), growth of telecom sector has spur due to NTP 2012. The number of telephone connections, increased from 41 million in 2001 to 943 million by February 2012. This growth has been driven by the cellular segment (mobile phones) which alone accounted for 911 million connections at the end of February 2012. The composition of the telecom sector too has witnessed a structural change, with the private sector accounting for 88 % of the total connections. NTP-2012 has the vision *Broadband on Demand* and foresees to implement both in rural and urban areas. The primary objective of NTP-2012 is maximizing public good by making available affordable, reliable and secure telecommunication and broadband services across the entire country. The main thrust of the Policy is on the multiplier effect and transformational impact of such services on the overall economy. It recognizes the role of such services in furthering the national

development agenda while enhancing equity and inclusiveness. Availability of affordable and effective communications for the citizens is at the core of the vision and goal of the National Telecom Policy – 2012. Pursuant to NTP-2012, these principles would guide decisions needed to strike a balance between the interests of users/ consumers, service providers and government revenue.

Rengarajan (2000) has stated that alteration in potential from developed to developing economies have changed dynamics of market. Transformation of global telecom industry is due to advent of privatization and consolidation. Whereas consolidation in the industry is strived by increasing customer demands, dropping tariffs, technological advancement and shift in competitive strengths. This will further accelerate the entry of global players into hitherto closed market tend towards providing best services. The researcher has observed that the telecom market is undergoing a paradigm shift and agile players that can capture and retain customer base would dominate the market. The study concluded that decreasing growth rates and margins in the mature markets are likely to encourage existing global players to diversify further into newly de-regulated markets such as India.

Saxena (1997) ascertain a complete perspective of the telecom sector in India – the existing situation, growth in urban and rural areas, development strategies, and the future growth – indicating that the deployment of resources in this sector has been terribly low. The author has examined various instruments for financing this sector and also suggested a mix of equity participation and debt for future growth. He observed that the financing of telecom sector in India can be achieved by mix of equity and debt. The study concluded that the emerging market investors are quite optimistic about the telecom sector and that the domestic debt market is also quite promising for being tapped for future growth of this sector.

Sharma & Yadav (2007) Authors emphasized that telecommunications is one of the fastest-growing areas of technology in the world. Since the 1960s, telecommunication developments have been rapid and wide reaching and have seen the greatest advancement in telecommunications. Due to rapid growth, businesses and individuals can access information at electronic speed from almost anywhere in the world. By including telecommunications in their operations, businesses can provide better services and products to their customers. They

emphasized that a crucial aspect of the institutional reform of the Indian telecom sector was setting up of an independent regulatory body in 1997 – the Telecom Regulatory Authority of India (TRAI), to assure investors that the sector would be regulated in a balanced and fair manner. Deregulation and new technology have created increased competition and widened the range of network services available throughout the world. This increase in telecommunication capabilities allows businesses to benefit from the information revolution in numerous ways, such as streamlining their inventories, increasing productivity, and identifying new markets.

Shyamal Ghosh (2003) opined that in terms of the growth in the telecom sector, India is second only to China. There is a huge potential market still to be tapped and, therefore, India should attract substantial investment in this field as well. Both domestic and international long distance rates have been reduced substantially, which came down to former by 62 per cent, the latter by 50 per cent. Further reduction is been expected in the next financial year. When the mobile cellular services started, the peak air-time charges were very high at Rs. 16 per minute. This has come down to Rs. 2 per minute in most cases and even less in some instances and the incoming calls became totally free.

According to India-Report (2015), Indian Telecom sector emerges as a pioneer in the virtual world by 2025 with 700 million internet users. In coming years, Indian telecom sector experiences speedy growth with the support of government regulations and policies, and 4G services. Further, with the developments in this sector, services such as security and surveillance, remote monitoring of ATM machines, home automation, traffic management, retail, logistics and grid energy could eventually facilitate optimization of resources.

Virat Bahri (2006) emphasized in his study about opportunities for investments in telecommunications which were identified by Sam Pitroda the Chairman of Worldtel as per their perspective. He analysed the increasing role of e-governance in taking development of Indian telecom sector to the next level.

Walters (2003) highlighted that the telecommunications industry has made rapid progress due to the advent of technology and internet as well as its tremendous success. There is an exceptional growth in the telecom sector over the past few years. While the teledensity

is increased and there is continuous reduction in long-distance tariffs. Therefore, race and transformation of telecommunication sector is not new issues now. But the internet has enforced completely new set of alterations in the telecommunication sector. There are enormous opportunities to brain storm ways to fulfill needs of users and attract more number of users by using new technologies, comfort services which ultimately provide entirely new business scenarios with immense competition.

Working Report on the Telecom Sector for the 12th Plan (2012-2017) proposes that the Indian telecommunication sector ascertained key changes in the tariff structure. TRAI issued telecommunication tariff order (TTO) 1999, for rebalancing tariffs to bringing them closer to the costs. Later amendments to TTO 1999 together with improved competition have resulted in steady and generous drop in the tariffs. Further the packages offered by telecom operators provide local calls as low as 30 to 50 paisa per minute and STD as 60 paisa per minute. International call charges have also reduced significantly. On the course of 11th Plan, it was anticipated that 75% of telecom equipment demand would be met from indigenous sources; however the actual production was much lower

2.2 Customer satisfaction, loyalty, quality and other strategies

Global and Indian players in telecom sector are involved in selling of product and services which aimed at matching the rising demands of customer. This increasing competition in the market by offering various services such as; e-mail, download or listening to music, messaging, listening to radio, positioning services, sending photos, watching TV, ticket to events, chat, video conference, local authority information, responding to advertisement, using encyclopaedia, play network games, electronic wallet, banking, reading books, getting news, electronic surveillance, shop for goods and services and company information. Advent of new services made it crucial to maintain relationship with the customer. Due to customer preferences to “extra” and “free” it became mandatory to companies to understand customer satisfaction, customer loyalty, perceived service quality, marketing strategies and their preferences for maintain their existence in this cut-throat competitive scenario.

Agarwal (2009) has discussed in his study of mobile company’s Brand Ambassadors and their impact on consumer behavior that the popularity of a celebrity can attract the customer to use the product for the first time but after that, it all depends upon the customer

satisfaction. He also opined that a brands need to rework on its policies to make them attractive so as to imitate with brand ambassador.

Bansal & Bansal (2013) explained that the Indian telecom sector experienced drastic growth and diversification in par with other industrial sector in the country. With this view authors have taken up the research on Customer Satisfaction of Mobile Phone Service Users Operating in the Malwa Region of Punjab. Sample size of the study was 75 respondents and structured questionnaire and unstructured interviews was used for collection of opinion from the respondents. Cronbach's Alpha, Weighted Average, Ranking, Chi Square and the Percentage method have been used for analyzing the collected data. The results revealed that the main reason of changing the service provider, with a weighed score of 3.53, followed by Poor Network and Poor Customer Care Service, having weighted scores of 3.21 and 2.20 respectively. It has been found that SMS is the most widely used Value Added Service followed by Caller Tones having weighted scores of 3.56 and 2.25 respectively.

Bloemer et al. (1998) identified the base services in GSM sector are coverage of calling area, value added services, customer support services, the supplier's services of the operator and services in campaigns. The study also analysed the significant impact of perceived service quality in GSM sector on consumer loyalty. The authors examined antecedents and consequences of perceived service quality for both from the employee and the customer perspective. The author investigated the impact of role stress (role ambiguity and role conflict), on organizational commitment and commitment to quality. The study also look at the effect of these types of sales personnel commitment towards the organization on delivering customer perceived service quality by retail sales persons. Further the impact of sales personnel commitment and customer perceived service quality on customer loyalty. Conclusion of the study explains that the commitment to quality is a significant determinant of customer perceptions of service quality and customer loyalty. Author suggested that service providers should undertake steps to increase this type of commitment among their employees. Organizational commitment is a variable that should be handled with care by service providers, though it has a negative impact on perceived service quality and customer loyalty. The major implication of this article is that perceived service quality is the key success factor to customer loyalty, retention and asset efficiency. This implicates close monitoring of the expectations and perceptions of customer by market research and a direct

implementation of adjustments that seem to be necessary by the service organization and its employees.

Butt & Run (2009) mentioned that the intensified competition in cellular phone market is depicting a pattern of customer churn while the companies are still enjoying growth. This creates serious challenges for organizations in managing their existing customer while striving for growth. The common answer to such challenges is retaining customers through satisfaction. The study also talked about customer satisfaction plays a key step in improving service quality and retaining customers in cellular phone market. This study aims at answering what factors are contributing towards customer satisfaction in Pakistani mobile cellular services. The findings suggest that customer satisfaction constitute of four factors these are price, transmission quality, usage ease and service support. Results of the study demonstrate a four component model of customer satisfaction where price and network coverage are the two most important components contributing to the customer satisfaction. Customer service and ease of usage are two other components. Price and network coverage are the two most important components contributing to the customer satisfaction. As it is advent from study that satisfying cellular phone customer is not a single dimensional activity, the service providers must understand that apart from competitive pricing, they should carefully monitor the service delivery in terms of signal quality & network coverage. Author suggested that when telecommunication market become saturated then finding new point of differences will be more important to become successful marketer. In such case customer service and superior brand image can serve as hidden strength.

Chakraborty (2013) analyzed customer satisfaction & expectation towards a telecom company. Results of the study revealed that the dimensions which influence customer's satisfaction level are: tariffs and core services (like good coverage, good connectivity and network quality). Thus author recommended that telecom companies should focus on connectivity, tariffs, network coverage and quality.

Dahari et al. (2011) described that Customer satisfaction is a key in telecommunication business in Malaysia. The authors highlighted that the Malaysian customers are highly conscious about brand image, service quality and price. Authors further discussed that Malaysian mobile phone operators should be careful about these factors. Author further opined that Mobile phone operators need to develop effective marketing

strategies, efficient marketing activities and upgrade their technological capabilities. Specifically for the satisfaction of Malaysian customer's the operators need to develop and maintain better service quality, minimize price and improve brand image.

Dinesh Kamath, (2011) worked on a sample of 597 mobile telephone users from Pune city to study a critical evaluation of customer satisfaction of cellular phone services. He stated four parameters on which customer satisfaction depends are Network Coverage, Call Economy, Value Added Services and Instinct. Study concluded that local voice calls being most important service used by the user followed by SMS. Further results shows that in recommending the present service provider to other Idea Cellular Company's customers are more enthusiastic, followed by 'Airtel'. Study also explored that 'Airtel' is the most aspired service provider in the event of choosing a second service provider. Author further mentioned that due to high data tariffs, majority of customers do not surf internet through Cellular phones.

Eshghi et al. (2008) the author studied that service-related factors has positive influence in the Indian mobile telecommunications market. These factors has influence on customer satisfaction (CS), repurchase intention (RI), and customers' propensity to recommend the service. Author emphasized that the reliability, rational quality and competitiveness of service providers are driving all facets of customer satisfaction more than network quality, market reputation or convenience. When it comes to satisfaction from usage of the services competitiveness is the most important driver of satisfaction followed by reliability and convenience of service are the least important factor.

Gerpott et al. (2001) stated that customer retention (CR), customer loyalty (CL), and customer satisfaction (CS) are important intermediary goals for telecommunication network operators on their way to superior economic success in the liberalized German market. Thus study hypothesizes that CR, CL, and CS should be treated as differential constructs which are causally inter-linked. To prove the hypothesis 684 residential customers of digital cellular network operators in Germany were analyzed using LISREL. LISREL analyses support a two-staged model in which overall CS has a significant impact on CL which in turn influences a customer's intention to terminate/extend the contractual relationship with mobile

cellular network operator. In this study LISREL analysis support a two staged model in which overall CS has a significant impact on customer loyalty which in turn influences a customer's intention to terminate extend the contractual relationship with his mobile cellular network operator (=CR). Mobile service price and personal service benefit perceptions as well as less number of portability between related variables with the strongest effect on customer retention. The findings suggest that an important factor for regulators to promote competition in cellular markets is the enforcement of efficient number portability procedures between mobile network operators. At the end author opined for future research direction that given the paucity of previous research on CR, CL, and CS in competitive (mobile) telecommunications service markets there exists ample opportunity for management scholars and practitioners alike to contribute towards improved carrier profitability by expanding our understanding of antecedents and consequences of the duration of an operator's contractual relationship with his mass market customers.

Hao et al. (2009) analyzed kinds of specific and concrete operational factors having an important impact on Chinese mobile telecom customer loyalty. For the purpose of the study author established a model to represent the relationship between customer loyalty and its influencing factors (customer satisfaction, perceived quality, customer value, switching cost and corporate image). Further he described that out of eleven factors there are nine factors which have an important impact on customer loyalty in telecom industry in China. These factors are call quality, coverage of network, SMS quality, the convenience and reliability of Inquiring phone fee system, service quality of service center and rating price of given quality, customer's worry of troubles after change cell phone number, social responsibility, advertisements about corporate image. Further these nine factors were classified three categories these are (1) keep its good performance, (2) improve its performance and (3) improve its performance significantly. Author suggested that China Mobile can keep and increase its good preference by using advanced techniques to improve the phone call quality and increasing network coverage especially in the rural areas.

Iqbal et al. (2011) studied 235 randomly selected prepaid cellular service users investigated on estimating and comparing the perceived expectation and the actual satisfaction level of prepaid cellular service in Pakistan. The study has taken perceived

quality, perceived value and perceived expectations as leading variables for customer satisfaction whereas repurchase likelihood, customer complaints and price tolerance were dependent on actual satisfaction. Findings of the study explained that perceptions and satisfaction level that leads to high customer loyalty and customers have high expectations that are fulfilled by the cellular service providers to some extent

Joshi et al. (2010) in his study explored the key dimensions of service quality for mobile services in the telecom sector and to ascertain which aspect of service quality have significant impact on customer satisfaction. The findings revealed that there is a strong difference in the perceptions among various age groups, education levels, gender, and income range regarding service quality. The study concluded that the network quality is key factor in determining service quality.

Karimpanal (2003) stated that for improving subscriber loyalty 'Network Coverage' needs to be improved over time. Moreover specifically, it was improvements in coverage, for within cities, rural areas and on highways that was most apparent to the subscribers. He added that among all the major 'brands' in the cellular business, image of the company was, and continues to be a strong 'Motivator' with most service providers. Author further stated that Value added Services (VAS) are ‘Hidden Opportunities’ whereas tariffs and pricing specified as being extremely important by subscribers. In spite of the drastic fall in the service charges, the customers are still in quest of more discounts and cuts in service charges. However subscribers are taking for granted to service providers for their ability to deliver accurate and easy to understand bills on time.

Khan and Afsheen (2012) examined those factors which have a major influence on customer satisfaction. Data was collected from 150 students of five universities randomly in Peshawar region and data was analyzed using correlation and regression analysis. Results of the study indicate that customer satisfaction has significant relationship with customer service, price fairness, sales promotion, coverage, signal strength & promotion. Whereas that price fairness, customer services and coverage are major factors which can highly affect the customer satisfaction. Further the study revealed that the problem of coverage is generally in rural area where sometime customers are not able to gain services from any particular service provider. The author summarized that customer satisfaction depends upon the category of

customer. These customers can be divided according to their age, gender, profession, status, etc. The student category prefers service provider which offer better SMS packages, internet buckets and call packages.

Krishnan and Kothari (2008) examined the antecedents of customer relationships in the telecom sector by taking sample of 100 mobile subscribers from both genders and various age and income groups in Rajasthan. Working definition of antecedents for the study was prerequisites of a customer to enter into a relationship mode. Author identified Seven Desired Value Added Services (7DVAS) as an independent variables namely variety of service, price, advertisements, employee behavior, customer-service, accuracy in billing and timely information. The dependent variable for the study was the preferred telecom brand. Study concluded that the best indicators for brand recommendation are variety of service (value added services) and customer-service.

Kumar and Raju (2014) has carried out in Tier-II cities of Karnataka state with 680 mobile users using stratified random sampling to find out how customers are satisfied with the mobile service providers, especially regarding network, call cost, and customer care service. The mobile service providers in Karnataka state are BSNL, Idea, Airtel, Tata Docomo, Vodafone Reliance, and MTS. Author opined that the breathtaking growth of the telecom companies in India over the last twenty years has created history. Customer satisfaction must be continuously appraised, especially after customers have been using the service for a period. These factors should be taken into consideration in order to formulate strategies for customer satisfaction, which directly leads to high customer loyalty for mobile service providers or vice versa. Findings of the study suggest that the factors, which influence customer satisfaction are service quality, customer care services, network call cost, mobile internet, Value Added services offers, and M-Commerce applications. Study suggests that mobile service providers should provide awareness on offers and legal information to the users and must provide market- based and customer- based services. A firm can reap many benefits from high customer satisfaction level: they get a higher market share and become capable of keeping and maintaining customers.

Kumar et al. (2014) has studied the customer satisfaction on Telecom Service providers in Silchar. The major objective of the study was to find out the customer satisfaction level in Telecom service provider players in the market. The have taken major players in the market are (i) BSNL (ii) Airtel (iii) Reliance (iv) Vodafone (v) Aircel and (vi) Idea to study the market scenario. The data was collected from February 2013 to August 2013 and excel is used to for analysis. This study included fourteen such service counts that the cellular service providers offered to the customers. Result indicates that the customers have shown their satisfaction on GPRS service (3.34), festival offer service (3.32), free roaming service (3.29), validity service (3.21), bonus service (3.36) and online recharge service (4.5). However the customers have reflected their dissatisfaction with the service quality of network (2.9), customer care (2.94), SMS packs (2.74), free talk time (3.16), connection charges (3.71), Ease of availability of the retailer selling recharge coupon (3.12), Ease of availability of retailers transferring recharge voucher (3.06). Study further added about performance of selected cellular service providers among those performances of Vodafone was found more satisfactory than whereas the performances of BSNL and Airtel were found to be dissatisfactory.

Lam et al. (2004) study revealed that the convergence of mobile Internet and wireless communication technology has promised customers anytime, anywhere access to wireless communication. This paper explores customer satisfaction with mobile services by comparing the expectation and desire disconfirmation model to the mobile context and also incorporated constructs of perceived customizability and self-efficacy for mobile services to investigate the effect of customization on customer satisfaction. Author opined that there are technological constraints in mobile services which tend to obstruct user adoption, information access and transaction processes these are small screen displays and limited bandwidth. It therefore becomes crucial to customize interfaces, content, commerce transactions, and communication to meet mobile users' needs. Authors assumed that mobile customization can minimize the impact of constraints limiting handheld devices and contribute to the more effective use of the mobile web. The paper proposed research model and method to validate the effect of perceived customizability.

Malhotra et al (2011) have studied the different purposes of the use of a mobile phone and the criteria of selection of a service provider in the Delhi and NCR region. The study aimed to make telecom sector player to understand the prevalent consumer perception and factors for future growth. These players can be the existing mobile service providers, marketers, new entrants in mobile communication sectors, market analysts, policy makers and customers. The satisfaction levels of 250 students and employed youth of below the age of 35 years have been measured. The researchers have focused on specific factors appropriate for service provider, which are fueling the transition from one service provider to another through Mobile Number Portability (MNP), and also on the impact of MNP on the behavior of consumers. Results explained that customer satisfaction levels vary across mobile subscribers and suggested that the existing players should focus on certain service aspects, to allure new customers and retain existing ones.

Muthuswami et al. (2007) studied the consumer preference on various mobile connections and buyer behavior. Study carried out descriptive Research and the judgmental sampling of 200 customers of Chennai city. It covers various brands like Airtel, Aircel, BSNL, Tata Indicom, and RIM but special reference to RELIANCE and INFOCOMM in relation to various aspects. The main objective of the study was to analyse the position of Reliance India Mobile and other competitor brands (Airtel , Aircel , Hutch , BSNL) in the consumers mind and to know the reason for preferring the particular brand over the other brands. Findings of the study reveal that the expectations of the consumers are quite high and preference of individual consumers depends mainly on annual income and actual performance of the product as well as external influencing factors like society etc.,. Consistency in performance, level of satisfaction has a major impact. Further The study added that the individual preference towards the product based on various influencing factors like Price, group influences, social influences and psychological influences. Author suggested that because competition is growing in telecommunication sector so that company needs to take out many steps to sustain in the industry for being profitable. Also the management should ensure that the staffs are trained to service the customer in a way that leaves a lasting impression on them.

Patel et al. (2011) ascertained that entertainment is a key factor when customer decides to subscribe 3G mobile services followed by business application, quick information, and video application. As telecom sector in India is facing cut throat competition, it becomes necessary for 3G providers to pitch themselves efficiently against their competitors through different segmentation and positioning. According to the study two types of user group available, one is business application oriented and another is variety of entertainment oriented at minimal cost.

According to Paulrajan & Rajkumar (2011) identified communication quality, call service, facilities, price, customer care and service provider's attributes as the major choices of customers in choosing cellular mobile telecommunication. Measurement scale was developed to capture the consumer perceptions and was further analyzed systematically using advanced statistical technique like reliability and EFA techniques. The outcome of the study indicate comprehensively integrated framework to understand the vibrant relationships among several dimensions of service quality, price, product quality and availability, and promotion to have handful ideas on the consumers' perception. Further result shows that communication and price has significant positive impact and identified that these were listed as most influential and preferred factors in choosing telecommunication service provider. Finally, quality of the product and availability has a significant impact on consumer perception in choosing cellular mobile service provider.

Rzepakowski (2008) stated that deregulation fetched fresh competition that forces global and local telecommunication players to implement new sales strategies. The study used to find optimal products which could be recommended to telecommunication customers. The 2.2 Study presented conjoint analysis method and its connections with ANOVA as well as regression techniques. After that, author used different utility functions that represent preferences for voice, SMS, MMS and other net services usage are formulated and compared. Further parameters of the proposed conjoint measures are determined by regression methods running on behavioural data, represented by artificially generated call data records. Finally, users are split in homogenous groups by segmentation techniques applied to net service utilities derived from conjoint analysis. Within those groups statistical analyses are performed to create product recommendations. As customer's loyalty depends on the satisfaction he gets from product and service usage, should well suited to user requirements and of good quality

also Customers should be sure with the offers provided by service providers that they do not pay extra money for not used additional features.

Sharma and Ojha (2004) studied the factors contributing to customer's satisfaction of mobile user in India. The study used sample of 120 customers to develop and validates a psychometrically sound multi item measure of service performance in mobile communications. Finding shows that service performance in mobile communication service industry has three distinct constituents, network-based service performance, retailer-related process performance and network operator-related process performance. A three-component measure shows potential in assisting managers in tracking the service standard delivered on different service aspects to the customers, on a regular basis. This measure can be useful to the service providers in identifying the different customer segments having different performance perceptions of the service.

Sudheesh (2015) stated that customer satisfaction is the degree of satisfaction provided by the goods or services of a company as measured by the number of repeat customers. The study aimed to compare the services rendered by Airtel and Vodafone. Descriptive research is carried out with 50 respondents using services of both Airtel and Vodafone located at Avadi. The major findings of the study shows that satisfaction level of customers was average with respect to tariff, service coverage, data plan, compatibility and other factors ranging from 3.00 to 3.65. Author concluded that the demographic variables such as age group, gender and occupation had no impact on the satisfaction of the customer. The finding of the research also indicates that, due to customer's choice criteria most of the customers were satisfied towards Airtel and Vodafone.

Suthar et al. (2012) Authors suggested that cellular operators should try to retain their customer base on the first priority and improve their service quality. Authors emphasized that service quality is perceived the important factors by cellular phone users followed by value.

According to Turel & Serenko (2006), perceived quality and perceived value are the two antecedents of customer satisfaction and these will in turn leads to customer loyalty. This study considered the American Customer Satisfaction Model as a base for understanding the relationship between customer satisfaction and loyalty, and was tested empirically by collecting data from 210 young cellular subscribers from Canada. Lastly, the study provides

various insights for service providers, policymakers and subscribers; which help them to formulate better standards for providing high performance in future by network operators.

2.3 Customer Preferences

To make profit by improving quality and services, Indian telecom sector needs a conceptualized marketing. Telecom players in Indian market aims at the market as applied innovation driven for services, product and customers. They are investing more on customers to expand their customer base and increase number of subscribers. Due to increase in players and sky rocketing competition, the strategies followed by the service providers require a consistent change and service innovation value for money in the mobile phone service market.

Amulya and Anand (2012) have conducted empirical study on select telecom service providers that is BSNL, Airtel, Vodafone and Idea. The paper highlights the demographic trend along with the changes in traditional values and lifestyle of an individual. An important socio-demographic factor of mobile phone consumers, i.e., gender, age, income, occupation and qualification analyzed for Mysore city. The study underlined the 10 different purposes for which mobile phones are used by the respondents these are voice calls, internet, SMS, MMS, alerts, vice mails, caller tunes, movie/music download, participating in quiz and wake-up calls. Study also highlights the reasons for changing service providers and results shows that most prominent reasons are better service promises by the competitors followed by low talk time on recharge and high call tariff which are the cost component of the user's decisions. Whereas a small proportion of the respondents reasoned for change is non availability of the recharge coupons. However, frequent network disruption, network congestion, poor network coverage are also responsible for the changes.

Anita et al. (2005) studied focusing on customer loyalty and retention in cellular mobile communication. The study mentioned typology of loyal customers. These include Trapped, Wanderers, True loyalists, Purchased Loyalists, which are mapped on the grid. The study also stated that as a result of increased competition, customer loyalty and retention have

become important goals for mobile service operators. Reacting to the pressures, most of the cellular mobile service providers are trying to attract subscribers by not only reducing their tariff rates but also giving attention to the quality of services delivered. Further it explained the important reasons for non-switching from one service provider to other service provider are the cost and energy involved in interning, whereas dissatisfaction leads to the switching from current service providers owing to the hidden costs and other factors.

Annual Report Department of Telecommunications (2011), a very detailed report talking about the role of Telecom in development, The various regulations that have helped for the growth of telecom sector and the future of telecom in India.

Annual Report Telecom Regulatory Authority of India (2009-10), the report contains an overview of the Telecom Sector and a summary of the Key initiatives of TRAI on the regulatory issues with specific reference to the functions mandated to it under the Act. The report talks about the working and operation of TRAI and its functions. It talks about: TRAI carried out an elaborate study on the need to review the framework of spectrum management in the country and some of the licensing conditions. A consultation paper was issued, several rounds of discussions were held with the stakeholders and experts, both from the industry and academia, to evolve recommendations that would give further impetus to overall growth in this dynamic sector. The recommendations covering a wide range of issues including spectrum requirement and availability, capping of number of service providers, the amount of spectrum committed in the licence, roll-out obligations, treatment of excess spectrum, delinking of spectrum from licence, spectrum assignment and pricing facilitation measures to consolidate spectrum were sent to DOT in May 2010.

Birke and Swann (2005), this paper analyse the effect of network based on individual responses in UK, this helps in analysing the impact on immediate social network on choice of customer. Results of this study shows the evidences that subscribers influence the choice of operator but the study also found that other household members has strong influence in choice of operators.

Cellular Operators Association of India (COAI) Report (2011), the report talks about:

- To improve standards and competitiveness in the Cellular Industry and attain the status of world class infrastructure. To facilitate affordable mobile telephony services for Indians.
- To study the best practices & research of the industry as well as to analyse the Cellular Experience worldwide.
- To assist relevant authorities by providing them information about the industry to help them formulate suitable policies for the industry's growth.
- To improve standards and quality of services in consultation with GSM India - the Indian chapter of the GSM Association.
- To maintain and upgrade services in terms of speech transmission, access, coverage, security etc, to enable expansion of cellular services.
- To help achieve the national objectives of increased tele-density and improved Rural Access.

Chintan Shah (2012) opined that today's customers have become smarter and consider various factors before choosing service provider. With this fact his paper attempts to understand and analyze the preferences of customers to choose mobile service provider. He selected BSNL, Airtel, Idea, Vodafone and Aircel for the exploratory study and highlighted the three factors namely Service Quality & Brand Image, Service Charges and Network Quality considered by the customers to shape their preference for mobile service provider by using factor analysis. Further, the study evaluates the impact of motivators on subscription decision for a particular service operator, as it becomes important and beneficial for mobile service providers to understand basic factors which influence customers based on which his study provided a guideline to the service providers that they should create an emotional relationship with the customer through innovative plans and enhance their services quality & brand image, better connectivity and goodwill with the customer to increase their subscriber base.

Chowdhuri et al. (2013) stated that the Indian Telecom sector has proven to be an international success story. With an overall subscriber base of 914.60 million and a teledensity of 76.03%, the sector continues to grow from strength to strength. And the urban teledensity reaching 166.54%, the market has been showing signs of maturity. Study explained that Mumbai mobile telecom market has 12 operators, namely Loop Mobile,

Vodafone Essar, MTNL, Bharti Airtel, IDEA, Aircel Ltd., Etisalat DB telecom, Videocon, Uninor, MTS, Tata Teleservices and Reliance Communication Ltd. The study clearly highlights two aspects of Mumbai telecom market for example an upsetting factor and a motivating factor .The biggest upsetting factor is poor connectivity. Since this issue doesn't suffice the basic reason of using a cell phone, it becomes a major factor in changing a mobile service provider. The biggest motivator for a cell phone user is to buy a new connection is better call rates. Thus customer may shift loyalties in if an operator is having bad network connectivity and there are options available of other operator services with better call rates.

Elizabeth and Mukwada (2014) explored the strategies that have been employed by cellphone companies in order to retain subscribers in South Africa and to evaluate the effectiveness of the strategies from the viewpoint of the customers. This study evaluated retention strategies that have been adopted by the cellphone industry, where players are battling to retain customers or recruit new ones. The study concludes that though there are many retention strategies that have been adopted by cellphone network providers in South Africa; the most effective are quality of the service provided, provision of customer support services and the capacity of the network to provide the services at an affordable price. The study also indicates that effective customer retention can be better achieved not just by enhancing the quality of the service provided but through effective marketing.

Gupta et al. (2009) studied the evolution of pricing in the Indian telecom industry and analyze Airtel's and Tata Docomo's post-paid plans to identify the strategies underlying these plans. Findings of the study reveals that service providers give customers an incentive to talk to other users on same network by providing a lower call rate, using this strategy they increase their customer base. Authors mentioned that plans with different rentals do not differ much from each other and though they seem to provide users specific benefits. In addition, the per-second billing plans, which have supposedly changed the face of Indian telecom industry, are not beneficial for the costumers as are hailed to be. Study results also show that these plans are beneficial to the customer only as long as the average duration per call is less than 50 seconds, and for longer calls, the customers actually end up paying more.

Gupta, IANS (2015) describe spectrum bands and state that if one refers to, say, a 900 MHz band, which is used for mobile telephony, among other applications, it is actually a

range of airwaves, also called a bandwidth. He further added that the range for 900 MHz band is 900 million waves per second. This typically extends from 869 MHz to 915 MHz in India. Therefore it is not a single frequency but collectively called 900 MHz. This holds true for other bands. He also reasoned for falling quality of service and call drops these days are due to lack of available spectrum. He mentioned that as per official data the market-leader Bharti Airtel - which is among the operators facing a spectrum crunch in the Delhi and has 36 MHz of spectrum for this circle in the 900 Mhz, 1,800 MHz and the 2,100 MHz bands and serves 10.8 million subscribers. Similarly, Reliance Communications has 28 MHz of spectrum in Delhi in 800 MHz, 1,800 MHz and 2,100 MHz bands and serves 8.2 million subscribers.

Haque et al. (2010), the aim of their study is to develop the research framework based on literature review. The study is done on Bangladeshi consumers aiming to find out factors influencing in selection of service provider by comprising of many factors such as their demographic background, price, service quality, product quality and availability and promotional offers. Study results reveal that price is the parameter followed by service quality, product quality and availability and promotional offers. This study also opined for future research scope to in-depth analyses can be carried out by gathering more responses on service quality and customer satisfaction of Bangladeshi customers.

Indian Telecom Sector Report (2012), it is a detailed report which talks about the different Models companies are adopting to enter the telecom market. It also discusses in detail the challenges faced by companies in coping up the intense competition in the telecom market. In addition it talks about how all new entrants face structural issues of spectrum inefficiency and a poor distribution / brand / sub base. It also talks about the immense challenges faced by telecom companies in expanding their distribution networks and how Inspite of doing everything, the quality of subscribers is still low. It talks about strategies on retaining high ARPU customers.

Kumar (2011) has done an empirical study on 361 Mobile phone subscriber for a period of 3 months to investigate the factors influencing the mobile subscribers Intention to switch mobile service providers in India. Further data was analyzed using structural equation

modeling. Author stated that Service Accessibility, Service Affordability, Promotional Offers and Customer Service are four important factors which are influencing the customer in selecting the telecom service provider. Study results shows that Service Quality is the most important factor influencing the mobile subscriber intention to switch service provider compared to Promotional Offers and Service Affordability. Author revealed that Service Accessibility, Service Affordability, Promotional Offers and Customer Service are four important factors which are influencing the customer in selecting the telecom service provider. Customer Service has the highest impact on selection of service provider. Author said that Service Accessibility is the second factor which influences the customer in selection of the service provider. Service Accessibility is availability of the network, SIM cards and customer service center for customers.

Malik Fawad Nazir (2007) said that telecom market of Pakistan has experienced enormous growth and is likely to grow even at advanced level in the coming years. Author analyzed the willingness of the customers in Pakistan to have better quality of service at an extra cost. This helped the Mobile Service Providers and PTA to analyze the feasibility of future quality enhancement related projects. Author explained that there are six cellular service providers competing under the supervision of Pakistan Telecommunication Authority. Mobilink (an Orascom company) has the first mover advantage in the GSM based cellular service in Pakistan and currently holds a market share of around 44%. But the Quality of Services (QoS) provided by these cellular service providers remains the main issue. Measures taken by PTA (Pakistan Telecommunication Authority) such as MNP (Mo-bile number portability) aim at influencing the cellular service providers to provide better services to the customers or else end up losing market share. Quality being the function of reliability and productivity has its own cost also referred to as COQ (cost of quality).

Misra and Shukla (2011) mentioned that the problem of churn out is treated very crucial by the telecommunication companies as these churn outs on regular basis decreases their market share. Thus study aims to understand the reasons due to which customer builds up his mind for changing the telecom service providers in the rural areas of Lucknow district. The study specified reasons as tariff and schemes, brand image, call quality, subscription duration and customer service failures. Therefore, it is necessary for the telecommunication

companies to understand the reasons of churn and make the suitable strategies to retain the customer. The churn also affects their position in the market; it affects the market share of the companies. Therefore author further suggested that the telecommunication companies to understand the reasons of churn and make the suitable strategies to retain the customer. The churn also affects their position in the market; it affects the market share of the companies.

Rahman et al. (2011) Authors examined the choice criteria of customers for a mobile phone operator in the Malaysian Mobile Telecom market. Data is collected using random sample of 400 mobile telecom customers from major cities in Malaysia and analyzed by structural equation modeling. Findings show that price and service quality are more important than the brand image. Further the study explain that the network quality is one of the important factors of overall service quality. The outcome of this research shows a comprehensively integrated framework to understand the vibrant relationships among several dimensions of service quality price, and brand image to have a handful idea on the consumers' perceptions.

Power (2009) analyzed wants of customers for telecom services and products based on their responses. In the study author analysed customer satisfaction based on the identified six factors these are customer service, reliability, billing, image, cost of service, offers & promotions. Author examined "Customers perception towards Mobile service providers: An analytical study" aims to infer the most influencing parameters perceived by customers while consuming the services of a telecom service provider (Taneja & Kaushik 2007). The factors influencing the choice of the cellular services are higher number of included extra charge. MMS, Low administrative changes, least number of call drops, call waiting facility, call conferencing facility, good storage capacity in SIM. call recording facility, reasonable charges trout going calls, least number of formalities, large number of promotional schemes, prepaid or post-paid facility, low cost SIM and other (Agarwal Pradeep, 1999).

Raj and Anandraj (2014) opined that communication plays a key role in the growth of Indian economy this made telecom industry prominent and fastest growing sector. It acts as a major catalyst for the economic growth. The study is done on 200 samples have collected by using the simple random sampling method. The structured questionnaire is administered to

collect primary data directly from customers. Findings show that that Airtel is the dominant leading mobile service provider in Pondicherry town and other service providers to improve their services among the mobile users. The overall mobile users' attitude towards mobile services is that they are satisfied with the existing services but still they want more services to be provided. Author recommended that the cell phone services should be given low price offer to contact another phone, and also given friends number, they get more sales in the market and to improve more services is better in the marketing. Another suggestion of the study is mobile phone operators should launch some schemes exclusively for senior citizens, housewives and students.

Rajpurohit and Vasita (2011) conducted study on 250 mobile phone users of various mobile phone service providers such as Vodafone, Airtel, BSNL, Reliance, Idea, Tata Indicom and few other players. This study aimed to find out consumer preferences and their satisfaction level towards the mobile phone service providers available in Jodhpur city, Rajasthan. Results highlights that call tariffs induce the consumer to buy a particular mobile phone operator followed by network coverage and brand image. The study also indicate that majority of the consumer are satisfied with the value added services offered by their mobile phone service providers. Findings show that the consumers are highly influenced by their family members, friends and advertisement while selecting or buying a mobile phone service provider. Study shows that BSNL is the most preferred mobile phone service providers among consumers followed by Airtel and Vodafone in the city.

Mobile services providers are investing a lot but still there are mismatches in the actual and perceived value of the customers. Bamhoom (2006). Value added services offered by mobile service providers can increase both customer satisfaction and total usage which in turn can reduce churn rate, increase revenue and repurchase of entire services in future (Henkel and Honchaime 2002). Marketing strategies of mobile phone service providers plays a vital role in the determination of their customer satisfaction (Lim and Widdows 2006).

Shikha Ojha (2009) studied on "Consumer Awareness of VAS of Telecom Sector of India". The author found out that the less number of users are aware of all the VAS provided by the service providers therefore companies should focus on the awareness campaign.

Strouse (2004), the book talks about the state of telecommunication industry. It is one of the rare books which talks about the traditional distribution channels in Telecom and the evolving route to the market. It talks about the new channels that are developing and this is resultant of the increased need to reach close to the customer.

Sulekha Munshi (2011) examined Expectations and Perceptions of Customer's towards mobile phones said that there is a gap in the expectations and perceptions of the mobile service users. The study has taken into account major variables such as gender, occupation, annual income and age with respect to the Marketing Research on "expectation and perception of customers regarding mobile phones" has thrown light on some very interesting facts.to analyze the data. Z-Test is applied and it is found that there is a significant difference in the expectations and perceptions of the respondents which leads us to believe that the customers are not fully satisfied. This indicates that there is scope for improvement.

Thomas (2012) has explained two reasons for why 900 Mhz is superior to the 1800 Mhz band in his article. He stated first reason based on physics laws that higher the frequency band, the lower will be the wavelength. That is the signals sent out using higher frequency bands will travel lesser distance than signals sent on a lower frequency band. It has been proven that 900 Mhz band has 30-40 per cent better coverage than 1800 Mhz band. To make up for this, mobile companies on 1800 Mhz have to invest more in setting up larger number of base stations to achieve the same coverage as in the 900 Mhz band. Therefore the operators using 900 Mhz spectrum will need to install 1,71,954 more base stations to match their existing coverage if they were to start using 1800 Mhz spectrum (report from research firm Analysis Mason). The second reason he gave that availability of devices and network equipment at affordable price is main cause for a particular frequency band scores better than the other.

Venugopal (2008), Sales and Distribution Management: An Indian Perspective adopts a customer-centric approach to sales and distribution management where strategic and operational decisions are made keeping the end consumer in mind. It develops a framework to integrate the sales and distribution management functions with other marketing mix elements so that there is no overlap with other functions of the marketing department. The book also describes the service orientation required for selling different products and the importance of behavioral transactions that need to take place for a sale to complete. Generalized frameworks are built using examples from industrial products, consumer products and services.

Vikas Gautam and Mukund Kumar (2011) stated that consumers are aware of the alternatives available in relation to services providers and services offered this made them serious about the selection of service providers. The study aims to examine the factors responsible for helping the consumers to choose mobile telecommunication service provider among the competitors in the market. Author identified these variables are demographics, service quality, product quality and availability, promotion and price in order to study perceptions of consumers. Structural equation modeling is used the results shows that price is the most important factor followed by product quality and availability, service quality, and promotion in determining perceptions of customers towards mobile telecommunication services. Expectations of consumers are rising and identified variables (demographics, service quality, product quality and availability, promotion and price) having significant impact on the selection of mobile telecom service providers in the competitive mobile telecom market of India. Therefore the provider organizations should be aware of these expectations. Author further opined that Based on these aspects, service companies are in battle with each other both acquiring new customers, as well as retaining the existing ones. Competition is not only in terms of better network quality, but also in terms of retaining existing customers with the help of various techniques of price reductions and promotional offers.

2.4 GAP Analysis in existing Literature

Though India has crossed 800Mn mobile users in the country, but still it is tough to point out for sure the factors that help a customer to choose a Mobile operator. When it comes to the Mobile operator, the knowledge of a customer is limited and hence most of the decisions related to purchase are more driven by the noise a typical mobile company makes in the market to attract the customer. While one mobile operator like DoCoMo will only talk about key benefits it offers to its customers in its national advertisements, the operator like Idea will mostly use the emotional connect in its national advertisements to attract the customer.

The difference in strategies of mobile operators in attracting the customers leads to a lot of confusion in the minds of gullible buyers and they tend to adopt a not so standard approach in selecting the mobile operator. After having reviewed the existing literature available on telecommunication sector, its growth, service quality, marketing strategies, customer satisfaction and customer loyalty the study gaps were identified, make apparent the need for a study. The literature mostly supports to find out major preferences of customers to select service providers but there is hardly any study done to indicate a standardized approach that a customer should adopt in selecting a mobile operator. Infact, major studies are done on service quality, customer loyalty and customer satisfaction but literature does not categorically mention the importance of Network in selecting a mobile operator. It does not explore the resultants like call quality, call drop etc. and the key factor that causes them. Hence the importance of Network in being one of the key factors in the customer's decision making process remains undermined.

The literature makes only a passing reference of Distribution as a key factor in customers mind while choosing a mobile operator. This also happens because distribution is very specific to an area. While it will not be difficult for anybody to make out the importance of distribution, studies did not give much emphasis on it and thus fail to realize the immense impact it has on choice. The activities that take place in a Customer care Centre are something which have been untouched by literature and hence its impact on customer choice. Customer care has been a reason for customers switching between operators and this need to be explored.

As customers become more aware and knowledgeable about available services with increase in competition among service providers, therefore another gap that comes out strongly is analyzing the impact of Value Added Services (VAS) in being a key factor in choosing a mobile operator. This too needs to be explored in depth.

Today, the mobile freedom has been achieved in the true sense and this been possible only after the introduction of Mobile Number Portability (MNP) in India. Customers will increasingly make use of MNP and they should be equipped enough to take a wise decision via MNP. The scope of our study is a step in the direction of educating these customers in making the right choice of mobile operator.

2.5 Research Questions

This research is an attempt to analyze ongoing practices of the Indian Telecom sector. Required attention is been paid by researcher to correlate the variables identified and full fill identified gap through literature to frame a hypothesis. On the basis of the background of the research and the gaps found therein, following areas would consider to be important for the research.

- Why do some consumers select particular cellular phone service provider while others prefer another service provider?
- How does distribution affect the perceptions of consumers in selection of service providers?
- What are the initiatives adopted by telecom service providers for customer acquisition and retention, in terms of tariffs, call quality and call drops for dealing with their present and potential customers
- What are the important factors for customers for choosing particular service provider?
- How do customer care services and value added services affect customers?

2.6 Conclusion

Review of literature provides varied studies in the area of telecommunication and provided the basis to identify the problem. Keeping in view the developments taking place in telecom sector, this study is focused on service providers of Indian telecom sector.

Literature review focused on growth and development of telecom sector explained in the section followed by studies related to customer loyalty satisfaction and marketing strategies adopted by service providers to attract more user of …….. . In this study telecommunication literature is rich with numerous studies made on service provider strategies, customer preferences for selection of service provider and various variables considered important in the selection of service providers.

In this chapter studies discussed were more focused on parameters of customer‘s choice of service providers. All these parameters are important to influence the success of service provider in the competitive era of telecom sector. If customers alleged parameters influencing them to choose service provider positively, then their decision to being loyal increased.

Literature review clarifies that almost all the studies focused on customer satisfaction, loyalty, customer retention and service quality. This does not provide a complete knowledge to the service provider to formulate a strategy for increasing their customers. Another important verdict from the study of literature that studies have identified distribution as a key factor in customers mind but fail to emphasize on it, while it is very important factor in making a choice of service provider. The another factors which do not get attention are customer care centre and Value Added Services (VAS), which has been a reason for customers switching between operators and this need to be explored. As telecom sector is encountering speedy growth in India therefore this provides direction for the research.

This research effort were made to suggest a set of parameters to customers to help them in making right choice of mobile operator and then use these parameters to suggest best mobile operator in Andhra Pradesh. The outcome of the study will support service providers to formulate strategy to sustain long term in the market. Statement of the study, objectives, hypothesis and research methodology for analysing is discussed in the next chapter.

CHAPTER III

RESEARCH METHODOLOGY

3.0 Introduction

Indian telecom industry has witnessed remarkable growth, in relation of number of users and is one of the fastest developing cellular markets in the world. It is second largest industry in the emerging economies of Asia. The Telecom industry is in ongoing process of transformation to next generation network. This accelerates competition among service providers which in turn is resulting in offering best plans to the customers. Present research work is aiming to help customers to choose best service providers. The research is undertaken with a wide coverage of primary sources of data which consists of material collected from the service providers selected for the study, their distributors, franchises, retailers, interviews of managers and customers. Secondary data includes theoretical concepts related to the subject, articles published in books, journals, newspapers, magazines and online sources, papers presented at conferences and seminars, case studies, books published on the subject etc.

Every research needs a suitable methodology to be developed. Research methodology is a systemic method to deal with identified problem. The review of literature has led to conceptualization of the research framework and subsequent formulation of the hypotheses for empirical testing. This chapter includes the problem statement, objectives of the study, research design, type of data and methods of data collection, the sampling procedure, sampling design, questionnaire formation, data collection, the survey procedure utilized, hypothesis to be tested and various statistical techniques employed in the study.

3.1 Statement of the Problem

Describing the problem of the study is the initial and main step in the research process. Gaps were identified after the literature review, related to customer preferences in selecting service provider. Researcher observed that there is a need to make an attempt to understand factors considered important by customer while making decision regarding their selection. Global market is witnessing a cut-throat competition in all emerging sectors and telecom is one of

them. A telecom sector also has its life cycle in terms of services being provided to the customers. Every now and then new services are introduced and get fads from the market. Influence of global and psychological changes and exposure to media attributed to customer awareness which increases competition among service providers.

In order to ensure long-term sustainability in the competitive market, service providers are trying to cope-up with the ever changing needs of the customers and resulting in the abundance of services and thus creating confusion to the customers in selection of service providers. Hence the present study helps customers in making decision to select the best service provider. As well as it will guide the service providers to prepare policies for long-term sustainability. This will also help service providers in building a long-term mutually beneficial and trust-worthy relationship with its customers.

The research is limited to the mobile telecom service providers functioning in Hyderabad and Vishakhapatnam and includes Vodafone, Airtel, Idea and DOCOMO service providers for the study. The statement of the work under study is as:

"**Identifying parameters for customers for mobile operator selection: A study of Andhra Pradesh"**

3.1.1 Research Purpose

Wiedersheim and Paul (1989), define the purpose of research as to describe something, explain reasons, create understanding, predict results and/or suggest measures. Moreover, aiming to the statement of the problem, purpose of the research can be categorized as exploratory, descriptive and explanatory. One can utilize several of these purposes at once, and the purpose of the enquiry may change over time (Saunders et al., 2000).

Exploratory research is used to develop a better understanding about the phenomenon (Hair, Babin, Money & Samouel, 2003) and particularly useful when one wishes to resolve a certain problem. According to Saunders et al. (2000, 2003) exploratory studies are important means of finding out what is happening, to glance for new insights, to ask questions and to weigh up phenomena in a new light. There are three foremost ways of leading exploratory research: existing literature search, discussion with subject experts, and conducting focus group interviews.

A descriptive study can be described as one portraying an accurate profile of persons, events or situations. It is necessary to have a clear picture of the phenomena on which a researcher wishes to collect data, prior to the actual collection of the data (Saunders, Lewis & Thornhill, 2003). This goes further in examining a problem than exploratory research, as it undertakes to ascertain and describe the characteristics of the pertinent issues. Descriptive study defines about situation by providing measures of an episode or action. For example, this study which focuses on; which service provider is most preferred by customer? What are the major factors affecting customers to choose particular service provider? These types of questions can be answered by any descriptive study

Whereas, Explanatory studies establish the fundamental relationships between variables. According to Saunders, Lewis & Thornhill, (2003), in explaining the relationship between variables the stress is to study a situation or a problem. As per Hair, Babin, Money & Samouel (2003) to test whether one event or situation is responsible of causing another event is explained by explanatory studies. According to Saunders et al. (2000) combination of different methods can be used for different purposes in the study.

3.1.2 Research Approach

The knowledge claims, the strategies and the method all contribute to a research approach that tends to be more quantitative, qualitative or mixed. According to Creswell (2003), the main characteristics are breaking the problem down to specific variables, building of hypotheses, and testing theories using instruments and observations that provide statistical data.

(i) Quantitative Approach

Quantitative research is generally denoted as hypothesis-testing research. Symptomatically, such studies start with theory statement resultant of research hypothesis. Further an experimental design is customised to measure dependent variables and effect of independent variable is controlled. According to Newman & Benz (1998), the subject sample is derived to mirror the population of the study. According to Creswell (2003) in quantitative approach researcher mainly use scientifically proven statements for developing knowledge

that is cause and effect thinking and then lessening to particular variables and questions and hypotheses, further using observation and study instrument theories is been tested, then strategies to choose experiments and surveys finally collection of data on pre-set instruments that produce statistical data. These procedures are deductive in nature, contributing to the scientific knowledge base by theory testing.

(ii) Qualitative Approach

Qualitative research is multi method in focus, involving an interpretive, naturalistic approach to its subject matter. This means that qualitative researchers study things in their natural settings attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them (Newman & Benz, 1998). Qualitative approach is one in which the inquirer often makes knowledge claims based primarily on constructivist perspectives i.e., the multiple meaning of individual experiences, meaning socially and historically constructed, with an intent of developing a theory or pattern or advocacy/participatory perspectives i.e., political, issue-oriented, collaborative or change oriented or both. It also uses strategies of inquiry such as narratives, phenomenology, ethnography, grounded theory studies or case studies.

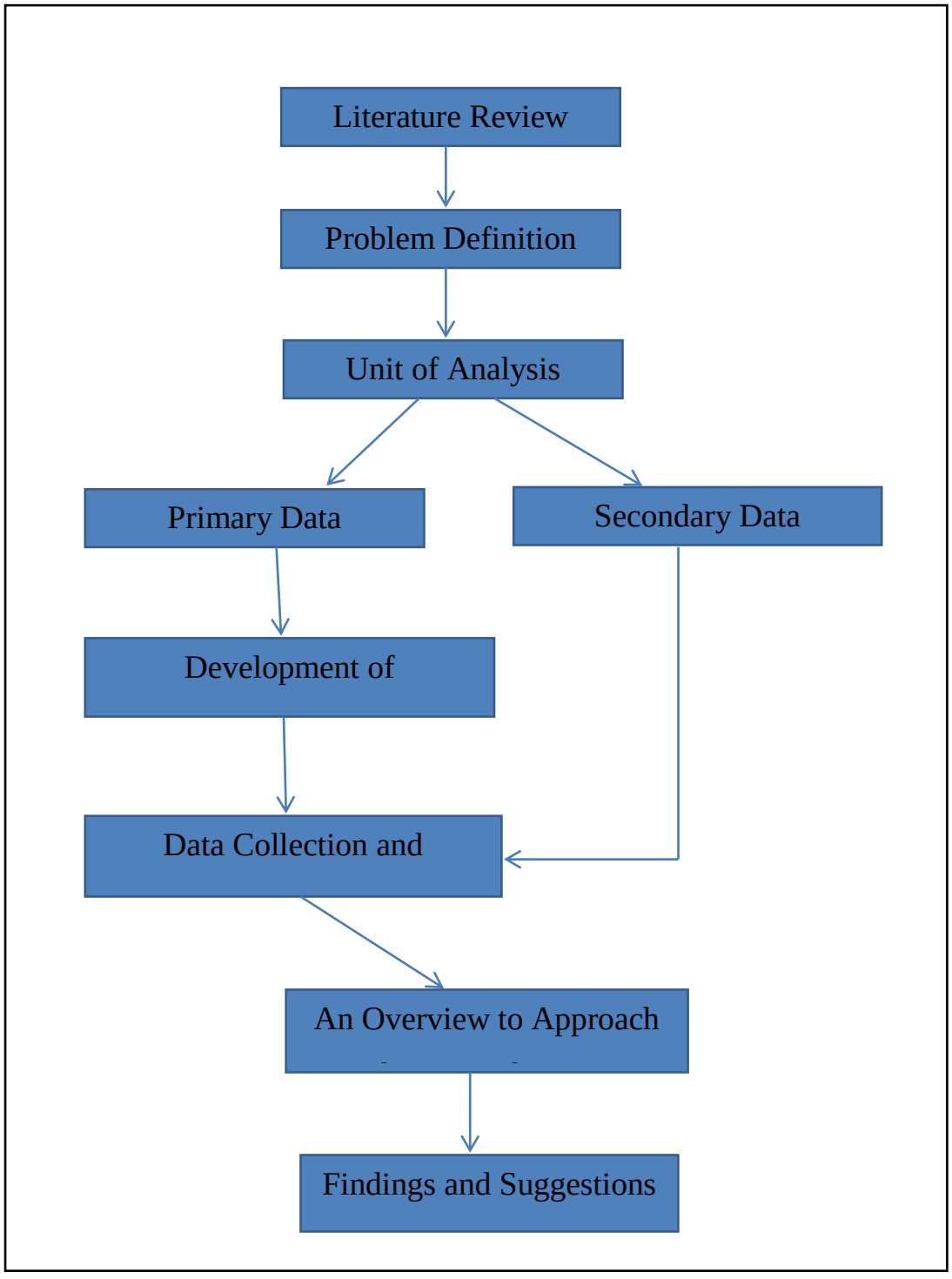
It can be established that the use of quantitative research approach is more applicable for present study as the purpose is to gain a better understanding of the direct and indirect relationships among dependent and independent variables. Additionally, to support the possible findings a small qualitative study has been conducted. This helps to ensure the validity of the quantitative data by analysing, so that the study results can be generalize maximally.

3.1.3 Research Design

Research design has been noted as an advanced set of decisions that creates the master plan for the determined methods as well as proceedings for the collection of data and analysis of the same (Groenewald, 2004).according to Yin (1989, 2003) research design deals with a logical problems where empirical data is linked the logical sequence. He proposed five components of a case study research design:

questions of the study; b) proposition ; c) its unit(s) of analysis; d) the logic linking the data to the propositions; and e) the measures of inferring the findings. Elements a), b) and c) state the data to be collected, whereas elements of d) and e) state that after data collection what is to be done. In this study, all five components are considered because this research will provide criterion to customers to choose best mobile operator.

The present research work uses a survey-based research design to empirically test the hypotheses proposed in the model. Recalling the aim of the research, is to suggest a set of parameters to customers to help them in making right choice of mobile operator as well as establishing the relationship between the dependent variables with independent variables. Thus, this study seems to be an exploratory study as it aims to gain a deeper understanding of factors affecting choice and patronage behaviour of the consumers. However, the main part of the thesis can be termed descriptive as it aims to analyse impact and effect of variables. The findings from such research may not be strictly conclusive, but are definitely suggestive



(Source: Compiled from research work)

Figure 3.1: Flow Chart of Research Methodology for Deriving Results based on five Components

3.1.4 Research Strategy

According to Yin (1994) there are five major research strategies in the social sciences: experiment, survey, archival analysis, history, and case study, were depend on three conditions, these are 1) research question formulation 2) control of behavioural measures and 3) pay attention on current events. Research strategy is overall plan of action that explains researcher how to move towards answering the research questions which is been set by research. It comprises clear objectives resulting from research questions, specifies data collection source which researcher aims to collect data, and contemplates the limits that the researcher unavoidably face, such as data access, time period, place and situations, money, and ethical issues. As discussed earlier, the current study is quantitative in nature and a survey method is adopted to collect large amount of samples. (Saunders et al. 2003).

Regarding research questions, the most common types are formulated as "who", "what", "where", "how", and "why" questions. "What" questions in general are exploratory, which means that each of the strategies can be employed, or they can deal with general occurrences, which then suggest that surveys are suitable (Malhotra & Birks, 2000). Hence, current study identified survey method as best suitable strategy for this thesis.

3.1.4.1 Single Vs. Multiple Case Studies

Single versus multiple case studies: While discussing about case studies, one of the foremost step is to determine about using first single case study or a multiple case study approach. According to Maylor and Blackmo (2005), single case study is emphasising on single unit of analysis. While considering purpose of this study, this approach is not appear completely appropriate; to study one single company of mobile operator researcher may lack in answering research questions which is set. Whereas according to Maylor and Blackmo (2005) the multiple case study approach is suitable to ascertain common features across cases. A case study of four companies in two cities appears to be suitable to aid the need of a case study approach with facing its limitations at the same time.

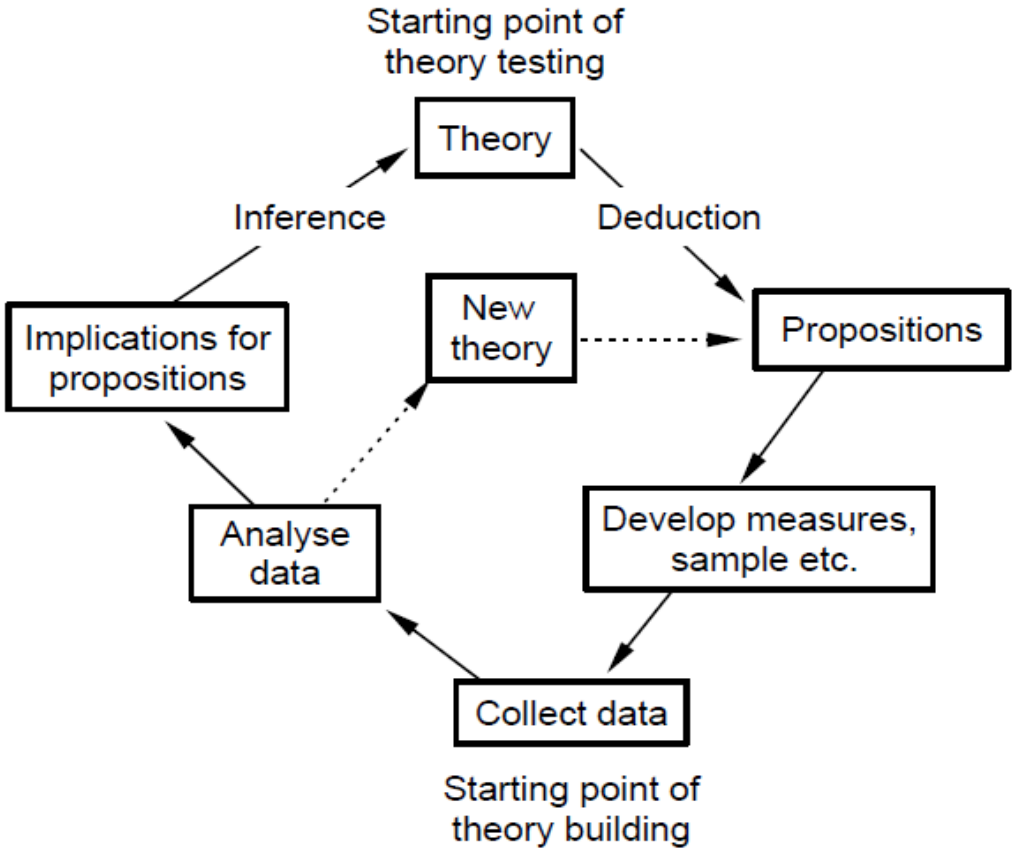
The survey strategy is a popular and common strategy in business research which is usually associated with the deductive approach. Survey allows the collection of large amount of data from a sizeable population in a highly economical way. In order to strengthen the result, survey strategy is used in this thesis. The data collection methods in case study

(Saunders et. al., 2003) and survey (Thornhill et. al., 2003) may include questionnaire, structured observation, structures interviews and documentary analysis. The study uses two complimentary approaches to analyse the case study. First, a single analysis will analyse the data independently for individual city. Later, across analysis is used which will strengthen the findings even further.

3.1.4.2 Theory induction from data

Theory can be formed by either induction or deduction (Saunders *et al*., 2007). Wacker

(1998) pointed out that the pivotal distinction between a case study and an analytical method is that empirical case study methods employ induction (i.e. depend on data) and the analytical methods employ deduction. If a theory is based on data, then a large amount of data is required, and case studies are a prime source of this research (McCutcheon and Meredith, 1993). The data can be quantitative data or qualitative data; they can be collected from either single or multiple cases (Yin, 2003). This study adopts an empirical case study strategy which employs an inductive method.



(Source: De Vaus, D. A. 2001. *Research design in social research*. London: SAGE.)

3.1.4.3 Generalization

According to Yin (2003), there are two types of generalization to theory: statistical generalization and analytic generalization. In statistical generalization, interpretation for population is made based on experimental data collected of a sample. Though, statistical generalization should not be considered to be the method of generalizing the results of the case study (Yin, 2003).

In analytic generalisation, generalisability is made by the course of action as: framework is desined for the study based on existing theory then empirical data is collected and evaluate other cases for the support to the study, futher based on the inferences of results of empirical tests imitation can be claimed (McCutcheon and Meredith, 1993, Yin, 2003). According to Yin (2003) Analytic generalisation can be used in single case study as well as multiple case study. This study uses analytic generalization.

3.1.5 Research Objectives

Broad Objective

Identifying parameters for customers for mobile operator selection- A study of Andhra Pradesh

Specific Objectives

1. To identify and compare network parameters of various Mobile operators.
2. To study the impact of Distribution on selection of a Mobile Operator
3. To study the impact of Tariffs- Pre-paid and Post-paid on the selection of a Mobile Operator
4. To study the impact of Customer Care and Value added services on selection of a Mobile Operator
5. To find the best Mobile Operator in Andhra Pradesh.

3.1.6 Hypotheses of the study

H1: Higher retailer coverage results into higher sales for Telecom Service Providers (TSPs).

H2: There is a significant difference in the sales of different service providers.

H3: Prepaid plans have significant effect on selection of Telecom Service Providers (TSPs).

H4: Post-paid plans have significant effect on selection of Telecom Service Providers (TSPs).

H5: Customer care services have significant effect on selection of Telecom Service Providers.

H6: Value Added Services have significant effect on selection of Telecom Service Providers.

3.1.7 Scope of the study

The study includes an examination and analysis of factors leading to the selection of mobile operators by customers and strategies adopted by them to attract customers. The data is collected from Distributors, Retailers and Franchises of select Mobile operators from the twin cities of Hyderabad & Secunderabad and Vishakhapatnam. It includes a survey to elicit their responses on the strategies adopted by mobile operators and services rendered.

This study is of Andhra Pradesh which is a Telecom Circle having both Andhra Pradesh and Telangana.

3.1.8 Data Sources:

Data is collected from primary as well as secondary sources.

a) Primary data is the first hand information collected from the respondents and that is not been previously collected. Data that is collected for the purpose of the study and that has not been existent before (Saunders, 2000). Methods of primary data collection, according to Daymon and Holloway (2002) are case studies, interviews, surveys, questionnaire or active participation of the researchers in observing the subjects under the study. This thesis uses interviews and questionnaire method for obtaining primary data. Primary data is collected from distributors, Franchises, retailers and managers of select service providers for the study by conducting interviews and administering questionnaire respectively.

b) Secondary data consist of readily available, collected and compiled information. Data that has been already collected for a different purpose, which can be used by researchers to re-analyse and draw, own conclusions. Both raw data and published summaries can be regarded as secondary data (Saunders, 2000). Secondary data allows researchers to access large amounts of data they might otherwise not be able to obtain, due to limitations in time, budget or reach. Secondary data is collected from sources such as annual report of service providers, publications, books, journals, magazine, papers presented at seminars, conferences and certain online sources. Additionally, the websites of the companies selected for the study providing annual reports with information concerning image, marketing initiatives, brand building

practices etc. are used. The secondary data, also referred to as frame of reference, in this research thesis is literature about customer preferences, loyalty and satisfaction especially in telecom sector.

3.1.9 Data Collection Plan*:*

Data has been collected from three types of respondent categories: **(1)** Distributors of the Company **(2)** Company Franchises and **(3)** Retailers .The survey was carried out with the help of questionnaire which is most common method of data collection. A questionnaire was prepared, which means that the questions are asked in a prearranged order (Malhotra & Birks, 2000).

The secondary data used in this thesis is gathered through literature survey. Furthermore, secondary data is collected from company websites that have taken part in the empirical data collection. . The secondary sources used by researcher can be grouped as follows.

Internet: Different websites were used to collect secondary data. These mainly include official websites of Public Sector Units like BSNL, MTNL, Vodafone, Airtel, Idea and DOCOMO. The websites of Government department TDSAT, DOT, TRAI, etc. were also used to get secondary data.

Newspaper and Journals: Number of articles from Newspaper like Times of India, Indian Express and Economic Times were read to get secondary data.

Journals: - The number of issues of the journals like Journal of Technology Management & Innovation, A Journal of Multidisciplinary Research, International Journal of Business Management & Research, Journal of Basic and Applied Scientific Research, International Journal of Research in Commerce and Management, International Journal of Scientific Research, Indian Journal of Management, Indian Journal of Marketing were used to get the secondary data.

Publications: Various Press Releases and Survey reports published by TRAI were refereed for Telecom Subscription data.

Customer service Centers: Some data was also collected from Customer service centers of different Telecom Services providers.

Primary data for a pre-study was obtained by the researcher through interview of the managers and distributors of select companies, concerning the policies adopted by companies to attract customers and from customers about major factors leading them to select services of a particular company. The interviewed managers, customers and distributors are contacted in person.

3.1.10 Data Collection Instrument:

For the purpose of this research work, mainly closed questions were used. Only an additional alternative was provided at the end of the questionnaire, an opportunity to leave comments or opinions in form of suggestion within the subject is included in the end of the questionnaire.

The researcher has used a self-administered questionnaire. This method of gathering data, ensures that the respondent filled the questionnaire fully and unbiased. The use of this method researcher also gets the chance to seek information which will support information provided in the questionnaire by respondent. As discussed in data plan the data was collected from three types of respondent categories: **(1)** Distributors of the Company, Company Franchises and Retailers (2) Managers of Service Providers (3) Customers

(a) *Category One-Distributors, Retailers and Franchisees*

]For this research work, self-administered structured questionnaire was chosen. 40 distributors, 33 franchises and 120 retailers were covered from Hyderabad & Secunderabad. 20 distributors, 15 franchises and 60 retailers were covered from Vishakhapatnam. Usually questions are designed to collect three types of information a) information that is used for classification purposes such as people's profile e.g. gender, age b) about individual behaviour e.g. what people do, and c) information about attitudes in terms of opinion or believes etc. (Hague et al., 2004) in order to design the questionnaire for the present research work, all three kinds of questions were included.

(i) *Interview*

The researcher of this thesis also used interviews method for obtaining primary data blend with secondary data as and wherever relevant to the research purpose. During the data collection process based on new insights, the interview questions were adapted or improved in their scope. Sekaran (2000) and Kumar (1999) proposed two kind of interviews based on practical degree of rigidity: unstructured interview and structured interview.

- In unstructured interviews, the interviewers have low level of rigidity and high flexibility for formulating questions during interviews. In this kind of interview researcher use interview guide.

- In a structured interview, the interviewers have high rigidity and use fix interview schedule with written list of questions in hand, which he needs to follow.

- Another type of interview, called semi-structured interviews, is given by Daymon and Holloway (2002). In this kind of interviews researcher use interview guide consists of questions which direct researcher during the interview and not allowing diverting from the issues to be focused. Depending upon the responses sequence of sequence of questions may change and also ensures control on the interviewers. On retiring of new idea, questions modification can be permitted.

- Researcher used semi-structured interviews whereby the researcher prepared an interview guide which direct the interviewer during interview and make sure of covering all required and focused areas. Additional questions were asked during the interviews to have flexibility required to focus on any significant aspect that could appear during the interview. Interviewees (Manager from VAS and Customer Service) were questioned in their respective company offices.

(b) *Category Two- Managers of Service Providers:* In this category, data was collected through semi-structured interviews scheduled with the two Managers from customer service area from each operator and two Managers each from VAS team from each operator. The aim was to acquire insight and general findings using broad questions. The four broad types of information were brought forth. These include: a) Information in relation to the plans and services of companies, b) Information in relation to their

customer preferences, and c) Information in relation to the their strategies and initiatives to increase customers d) Information related to band width they are operating

(c) *Category Three- Customers:* In this category data was collected from customers through structured questionnaire. The aim was to gather their preferences about selection of service provider.

3.1.11 Survey Questionnaire Structure

Table 3.1 Questionnaire to the Distributors and Franchises in the study

Issue	**Section**	**Question number**
General Information's	1) Name 2) Gender 3) Age 4) Education	Q 1 - Q 4
Services and Plans	1) plan of prepaid 2) sale of prepaid plans 3) retailers cover 4) sales per month	Q 5- Q 6
Motivation factors (leading for selection of mobile operator)	1) Level of satisfaction about plan/company selection 2) Level of satisfaction about pre-paid plans 3) Level of satisfaction about VAS 4) Level of satisfaction about customer care services	Q 7 and Q 8

(Source: Compiled by author)

In the survey related to both the Distributors, retailers and franchises, items directly compared with customer preferences identified through literature review and pilot study have

been included and divided into three broad categories. These were rated on a 5-point scale (5-strongly agree and 1- strongly disagree). These are as follows:

- Pride in services- Employee and consumer perceptions regarding the level of customer satisfaction with the offers and services provided. Six statements are used which reflects the Reliability dimensions.
- Value Added Services- seven statements is been used that reflect the Competence dimension. Six statements are also included to access the reputation and image of the company.
- Accessibility and Communication- Perceptions regarding how easy it is to access a customer and whether the customer cares are competent enough to understand the customer complaints and queries and explain options to them and take a follow-up action. Seven statements is been used in the questionnaire.

Table 3.2 Questionnaire to Retailers of the Select companies for the study

Issue	**Section**	**Question number**
General Information	1) Name of the store 2) Address of the store 3) Phone number 4) Retailers Name 5) Gender 6) Age 7) Education	Q 1- Q 7
Services and Plans	1) plan of prepaid 2) sale of prepaid plans 3) retailers cover 4) sales per month	Q 8 and Q 9
Motivation factors/decision factors (leading for selection of mobile operator)	Each for all four companies 1) Level of satisfaction about plan/company selection 2) Level of satisfaction about pre-paid plans 3) Level of satisfaction about VAS 4) Level of satisfaction about customer care services	Q 10 and Q 11

(Source: Compiled by author)

3.1.12 Verification of Conclusions

Steps taken to ensure Valid and Reliable Data Collection: - Following steps were taken to ensure valid and reliable data collection and analysis

1. The target population was identified i.e. Mobile Operators in Hyderabad and Vishakhapatnam city.
2. The representativeness of the sample was ensured. The corporate players from different background associated with mobile operators serving end were included to make sample more representative for.
3. The secondary data sources were also reliable since researcher used data from press releases of Government Organizations.
4. Structured questionnaire was used.
5. While administering the data collection instrument, the respondents were assured of confidentiality so that they could express their actual feelings. This has removed bias to most extent.
6. Incompletely filled Responses were discarded.
7. To avoid errors researcher has entered data with much care and used SPSS and Microsoft Excel.
8. To ensure validity and reliability of data, the researcher must have adequate knowledge on the Telecom Industry being studied. The researcher has been very active subscriber and has been serving telecom companies for about 10 years.

- **Inference**: The questionnaires are also tested by applying Cronbach Alpha measure. The results of the same are as follows:

Table 3.3 Reliability Statistics

Reliability Statistics for Distributors		**Reliability Statistics for Franchises**		**Reliability Statistics for Retailers**	
Cronbach's Alpha	N of Items	Cronbach's Alpha	N of Items	Cronbach's Alpha	N of Items
.845	25	.952	31	.838	104

The above Table 3.3 displays the results obtained. The questionnaire is said to be reliable if the score is above 60 % and as the above table reveals, the Cronbach's Alpha for Distributor's questionnaire, Franchises questionnaire and Retailer's questionnaire is 0.845 i.e. 84.5 percent, 0.952 i.e. 95.2 percent and 0.838 i.e. 83.3 percent which is very high and indicates strong internal consistency among the given items.

3.1.13 Pilot Study:

Before finalisation of the questionnaire, a pilot study has been undertaken with a sample of 120 customers chosen at random (30 each from the four service providers i.e. Airtel, Idea, Vodafone, DOCOMO) to substantiate customer preferences gathered from literature review. The study conducted during 15 February 2015 to 28 March 2015 in twin city Hyderabad & Secunderabad. Based on customer's response factors that have an impact on choice for service provider is been included in the questionnaire of Distributors, Franchises and Retailers for final study.

3.1.14 Sample Design

Keeping in view the focus of the research, which is, to help customers to choose best mobile operator, the following four mobile operators that is Airtel, Idea, Vodafone and DOCOMO across Private sectors are chosen based on customer reach and services offered.

3.1.14.1 Sample Size

The sample size refers to the number of items to be selected from the universe to constitute a sample. The size of the sample should be neither excessively large nor too small. It should be optimum. It is also dependent on three criteria called as level of precision, the level of confidence or risk, and the degree of variability in the attributes being measured. These three factors are discussed below.

3.1.14.2 The Level of Precision

The level of precision is also known an sampling error. Sampling Error gives some idea of the precision. A low sampling error means that one have relatively less variability in sampling distribution. If the sample size is greater error will be smaller. This range is often expressed in percentage**. (Dr. J. K. Sachdeva, 2008)** For Example if a data shows that that 40% of telecom customers are not happy with the network quality provided by mobile operator with a precision rate of ± 5 %, and then researcher can conclude that between 45% and 55% of Telecom Customers in the population are not happy with the network quality.

3.1.14.2 Confidence Level

The confidence level is the expected percentage of value that the actual value will fall within the stated precession limits. For 95% confidence level, 95 out of 100 samples will have the true population value within the range of precision. If the confidence level is 95 % then significance level will be 5 % and if Confidence level is 99% then significance level will be 1%. According to **C.R. Kothari (2004)** there is a possibility that sample does not signify true population For heterogeneous population large sample size is required for given level of precision. The homogenous population or less variable responses requires smaller sample size. A proportion of 50/50 percent on specific attributes or responses represents the maximum variability in a population than either 80 or 20 percent. Because 80 and 20 percent specify that a larger majority do or do not, have the attribute of interest. As a proportion of .5 indicates the maximum variability in a population, it is frequently used in defining a more traditional sample size, so it is used in determining the sample size

3.1.14.3 Sample Size Determination

There are several approaches for determining the sample size. These include using a census for small populations, applying formulas to calculate a sample size and using published table. According to Krejcie and Morgan, (1970) in case of random sampling, assuming a large population of 100,000 or more, that sample size would be 385 if one wanted to be 95% certain with a **+/-5%** margin of error. But in case of non-random sampling sample size is up to researcher.

3.1.14.4 Sample of the Respondents

Eighty eight distributors (59 for Hyderabad and Secunderabad and 29 from Vishakhapatnam), eighty two franchises (60 for Hyderabad and Secunderabad and 22 from Vishakhapatnam) and two hundred forty Retailers (160 for Hyderabad and Secunderabad and 80 from Vishakhapatnam) across all four companies (Airtel, Idea, Vodafone and DOCOMO) are chosen based on purposive sampling. The study is restricted to Andhra Pradesh. Two major cities is been selected for the study that is Hyderabad which is the first largest city having over 8.6 million population and Vishakhapatnam which is the second largest city having over sixteen lakh of population. From the above cities, the data of distributors, Franchises and retailers who were being surveyed for the study is as follows:

3.1.15 Sampling Plan

Table 3.4 Sample Plan

S.No	Object	Sample Size	Analysis Performed on
1	Number of Distributors	a) All distributors will be covered from Hyderabad city (59 of them across all 4 operators) b) All Distributors will be covered from Vishakhapatnam city (29 of them) **(88 distributors in totality**)	40 distributors of Hyderabad 20 distributors of Vishakhapatnam
2	Number of Franchises	a) Franchises covered from Hyderabad (60 across all four operators) b) Franchises covered from Vishakhapatnam (22 across all four operators) **(82 franchises in totality**)	33 franchisee from Hyderabad 15 franchisee from Vishakhapatnam

3	Number of Retail Outlets (Questionnaires delivered to owners of outlet)	There are 4 categories (Class) of outlets. A class, B class, C Class & D class. Within category, company schemes are same. a) 40 outlets in each class in Hyderabad (total 160) b) 20 outlets in each class in Vishakhapatnam (total 80) **(240 Retail outlets in totality**)	120 retailers of Hyderabad 60 retailers of Vishakhapatnam
4	Managers	Two General Manager/Sr. Manager level person from each operator in Hyderabad/Vishakhapatnam each (total 16)	

(Source: Compiled by author)

The proposed sample as is mentioned in the table, but on account of data loss to the extent of 122 Respondents, the analysis is done on data collected from the actual number of distributors were 60, Franchises 48 and retailers 180.

3.1.15.1 Purposive Sampling:

Purposive sampling method is used to collect data. It sometimes becomes necessary to obtain information from specific target-respondents who will be able to provide the desired information either because they are the only one who can give the desired information or because they satisfy to some criteria set by researcher. For the study in question, the respondents for survey distributors, retailers and franchises of the companies select for the study. These respondents are able to provide desired information on behaviour, availability and attitude of the customers using services and companies providing services. For this a purposive sampling was found more suitable and hence used. Similarly, the respondents who were mainly available at their workplace were approached on the basis of their convenience to get desired information and avoid their annoyance.

3.1.16 Data Collection

The primary data have been collected based on survey method. The designed structured questionnaire has been circulated to a larger population after the pilot study. The questionnaire was circulated to selected sample size of distributors, franchises and retailers. The data have been collected over a period of five months from February 2015 to June 2015. Distributors and franchises of the select companies, when approached, refused to provide the required information on account of not revealing information. Therefore, permission has been sought from the Vice-President and Territory Managers and later appointment has been taken to collect data. Data from retailers have been collected directly from their shops in Hyderabad and Vishakhapatnam.

3.1.17 Data Analysis Techniques

Data is analysed using statistical tools such as ANOVA, Chi-Square test, Spearman's Rank Correlation, Karl Pearson's Correlation, linear Regression and multiple Regression. SPSS is used to facilitate the same. These techniques used in marketing research is also being applied to the sample to evaluate the consumer's attitudes and beliefs that lead the brand decision by consumers. A brief note on the tools used is as follows:

A) ANOVA Test

The Analysis Of Variance is usually known as the ANOVA test. It is used in cases where there are more than two groups. It helps in evaluating differences between the mean, across more than one group of population. In this model, the dependent variable is continuous in nature, while the independent variables are categorical. For purpose of this research, this test is being used at one place 1) to study the effect of FRC on the selection of service provider.

One-way ANOVA: One-way is used for analysing the effect one category. Thus the basic idea for using the test is whether the mean of two samples are all same or not. Specifically, the sample should be randomly selected from each groups of the population, the distribution of the response variable is normally distributed in each population, and the variance of the

response variable is the same in each population. As indicated through its designation, ANOVA compares means by using estimates of variance. Specifically, the sampled observations can be described in terms of the variation of the individual values around their group means, and of the variation of the group means around the overall mean. These measures are frequently referred to as sources of "within-groups" and "between-groups" variability, respectively. If the variability within the *k* different populations is small relative to the variability between the group means, this suggests that the population means are different. This is formally tested using a test of significance based on the *F* distribution, which tests the null hypothesis (H0) that the means of the k groups are equal:

$H_0 = \mu_1 = \mu_2 = \mu_3 = \ldots \mu_k$

An *F-test* is done by taking the ratio of the "between-groups" variation to the "within-groups" variation

Chi-Square Tests:

The chi-square is one of the most popular statistics because it is easy to calculate and interpret. There are two types of chi-square tests. The first is called a one-way analysis, and the second is called a two-way analysis. The chi-square test is used to determine the association between two mean by determining difference between the expected and observed frequencies in one or more than one categories.

The main difference in goodness-of-fit vs. independence assessments is in the use of the Chi Square table. For goodness of fit, attention is on 0.05, 0.01 or 0.001 figures. For independence, it is on 0.95 or 0.99 figures (this is why the table has two ends to it).

i) Calculation: Chi-squared, c2 = SUM((observed - expected)2 / expected)

c2 = SUM((fo - fe)2 / fe)

where fo is the observed frequency and fe is the expected frequency.

For the purpose of this research, this test is used in knowing the significant relationship between uniformity in brand/corporate image and avoidance of confusion in the minds of the consumer. It is also applied in knowing the awareness of changed schemes of the service

provider and such changes being communicated by the company. It is also applied to how consumers rate other service provider for which customers are using services. It is also applied to know relationship between what kind of relationship the retailers, distributors and franchises has with the service providers and the factor that motivated him/her to opt particular company. Yule's Contingency Coefficient is also applied to further validate the data.

B) ***Correlation Analysis:***

Correlation is a measure of the relation between two or more variables. The measurement scales used should be at least interval scales, but other correlation coefficients are available to handle other types of data. Correlation coefficients can range from -1.00 to +1.00. The value of -1.00 represents a perfect negative correlation while a value of +1.00 represents a perfect positive correlation. A value of 0.00 represents a lack of correlation. There are several correlation coefficients, often denoted ρ or r, measuring the degree of correlation. The most common of these is the Pearson correlation coefficient, which is sensitive only to a linear relationship between two variables. This tool is used in measuring the correlation between the years of the having franchises/distributorship/retail shop and the attributes that they consider essential in evaluating the service provider Other correlation coefficients have been developed to be more robust than the Pearson correlation, or more sensitive to nonlinear relationships. Other correlation coefficients such as rank correlation coefficients, (such as Spearman's rank correlation coefficient and Kendall's rank correlation coefficient (τ)) measure the extent to which, as one variable increases, the other variable tends to increase, without requiring that increase to be represented by a linear relationship. If, as the one variable increases, the other decreases, the rank correlation coefficients will be negative.

C) Regression Analysis

A regression is a statistical measure that attempts to determine the strength of the relationship between one dependent variable which is usually denoted by Y and the independent variable which is changing, regression analysis is being used. Basically, the regression is of two types; linear regression and multiple regressions. Linear regression where one independent variable used to explain and/or predict the dependent variable that denotes by Y. It is seen that in making choice for the service provider, significant correlations exists between factors like prepaid and postpaid plans offered, value added services and

customer care services. For evaluating factor's effect and identifying major influencing factor(s), some factors are chosen which were highly correlated with service provider and also showing independent inter relation with each other, influencing customer choice decision about the service provider. These independent factors are denoted by X_n.

The general form of each type of regression is **Y = a + bX**

Where,

Y: Dependent variable,

X: independent variable used to predict Y,

a: is the intercept,

b: is the slope.

There is a positive correlation found among service provider i.e. dependent variable and other independent variables (X_i). In order to measure the level of effect of independent factor over dependent factor, comparing all four service providers, regression analysis carried out. The dependent variable is selection of service provider being tested over the prepaid plans offered, postpaid plans offered, customer care services and value added services as independent variables.

3.2 Limitations of the Study

The study is focused only on finding out unidentified variables and examines the causal relationship between independent variables and dependent variables which were identified from literature review having impact on selection of mobile operators. This research work is focusing on to help customers in selecting best mobile, if we take in account all parameters that can affect selection of telecom service provider then this subject would be limitless field of study. It would be difficult task to evaluate all relevant parameters and therefore, researcher agreed on limiting this study in some facets. Thus it is limited only to four companies of mobile operators and hence the findings would only be suggestive and not conclusive. Perceptions and customer opinions is elicited from distributors, franchises and retailers of twin city of Hyderabad & Secunderabad and Vishakhapatnam only. The inferences drawn are based on the responses elicited from them and hence may not be

conclusive in nature. Besides, the various statistical techniques were applied which carrying their respective limitations that may render the interpretations hold those limitations.

3.3 Scope for Further Research

There lies a great scope in conducting further studies related to telecommunication with special reference to mobile. This study focused on helping customers to select best mobile operator in southern region. The same can be extended to other segments in the sector. The study does not cover certain areas and hence there lies a scope for further research.

3.4 Conclusion

The chapter focused on understanding the statement of the study, purpose and research approach. Further chapter discusses the objectives of the present research work and hypothesis for testing probability. The research framework has been developed based on the research problems, objectives and the hypotheses. A tool has been developed to measure the variables. After testing for validity and reliability, primary data is collected using survey method from distributors, retailers and franchises. Appropriate statistical techniques are used to test the causal relationships among the variables and the set of hypotheses. Result of the data analysis will help to frame strategy to retain old customers and attract new customers. Selected service providers of the study are discussed in the next chapter.

CHAPTER IV

ANALYTICAL PERSPECTIVE OF SERVICE PROVIDER FOR HYDERABAD

4. Introduction

This chapter deals with the analysis and interpretation of the research work based on the objectives and hypotheses framed. The analysis of the study is divided into two parts; part one underlining analysis and interpretation of data about service providers, gathered from the distributors, franchises and retailers of the mobile operators of Hyderabad-Secunderabad city. This chapter also dealt with responses gathered from 100 customers of service providers of Hyderabad-Secunderabad city. However part two dealt with the responses about service providers, gathered from distributors, Franchises and retailers of Vishakhapatnam city.
The first section of the chapter highlights about factors which influences customer most in making choice of service provider. The next section of this chapter focuses on the findings, analysis and interpretation of responses of distributors, franchises and retailers of service providers which are t Airtel, Idea, Vodafone and DoCoMo.

4.1 Factors Influencing Customer for selecting Service Provider

In order to measure high influencing factor which drive consumers mind to select service provider among selected service providers, rank correlation test is applied. As literature review reveals that the choice of service provider's depend upon various factors or criteria such as network, tariffs provided by company, value added services, customer care supports, discounts/offers and availability whereas factors such as internet and celebrity endorsement have been taken to explore its influence on choice of the service provider. These two factor are included on the basis of personal observation and as an outcome of pilot study. Ranks are assigned to these factors based on their mean values. Rank 1 is assigned to that factor which has the lowest mean. Analysis is done for each company individually and collectively.

Table 4.1.1 Frequencies of Choice Factors for Service Provider

Statistics						
	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Discount	24	1	7	62	2.58	1.349
Value Added Services	35	1	7	97	2.77	1.864
Customer Care	34	1	6	106	3.12	1.343
Tariffs	35	1	4	56	1.60	.946
Network Quality	60	1	4	84	1.40	.785
Celebrity Endorsement	34	1	8	108	3.18	1.660
Availability	48	1	6	104	2.17	1.209
Internet	32	1	8	104	3.25	1.967

Table 4.1.2. Ranks Assigned to Factors influencing customer for choice of Service Provider

Factors	**N**	**Mean**	**Rank**
Discount	24	2.58	**4**
Value Added Services	35	2.77	**5**
Customer Care	34	3.12	**6**
Tariffs	35	1.60	**2**
Network Quality	60	1.40	**1**
Celebrity Endorsement	34	3.18	**7**
Availability	48	2.17	**3**
Internet	32	3.25	**8**

As seen from Table 4.1.2, Network quality is ranked first with the lowest mean of 1.40. Tariff concerned with call rates is ranked second with the second lowest mean of 1.50. It is followed by availability with a mean of 2.17 and Discounts with a mean of 2.58. The factor that is ranked fifth is Value Added Services, which iterates the fact that Indian consumers look for value for money to make a choice of service provider. The study shows astonishing results that factor which came out from pilot study as an influencing factor are celebrity endorsement and Internet have got least rank that is7 and 8 respectively. This shows that customers do consider these factors for assessment and selection of service provider but give least importance to these two factors in making choice of service provider. Though

companies are using these two factors as a weapon to compete and creating new customers. Results were contrary to perceived observation as it can be seen from the Table 4.1.2.

Company wise analysis presented in Table 4.1.3 reveals the variation of each store with the dimensions ranked for all the companies put together. From the table, it can be seen that collectively as well as for all four company separately, network quality is ranked first by the customers followed by tariffs. These two factors; network quality and tariffs has a strong influence on the minds of the customers. This result creates the need for further analyses of the network parameter of all four companies. Other factors are ranked differently for different companies. For example, in the case of Airtel, value added service got the third rank followed by availability. This is because as per company strategy customers are more demanding so Airtel tries to offer new bundle of joy to allure new customers. Other factors such as customer care, discount, internet, and celebrity endorsement, received 5,6,7,8 ranks respectively. In the case of Idea, it can be seen that availability and celebrity endorsement gets third and fourth ranks respectively as Idea used Abhishek Bachchan to advertise itself. Other factors such as discount, value added service, customer care and internet got 5,6,7,8 ranks respectively. In case of Vodafone discount gets third rank followed by availability as company provides more discounts on data and call rates. Other factors such as celebrity endorsement, value added services, internet and customer care has ranked 5, 6, 7 and 8 respectively. In case of DoCoMo discount and availability factors ranked same as Vodafone. Whereas, other factors like Internet, customer care, celebrity endorsement and value added services are ranked 5, 6, 7 and 8 respectively.

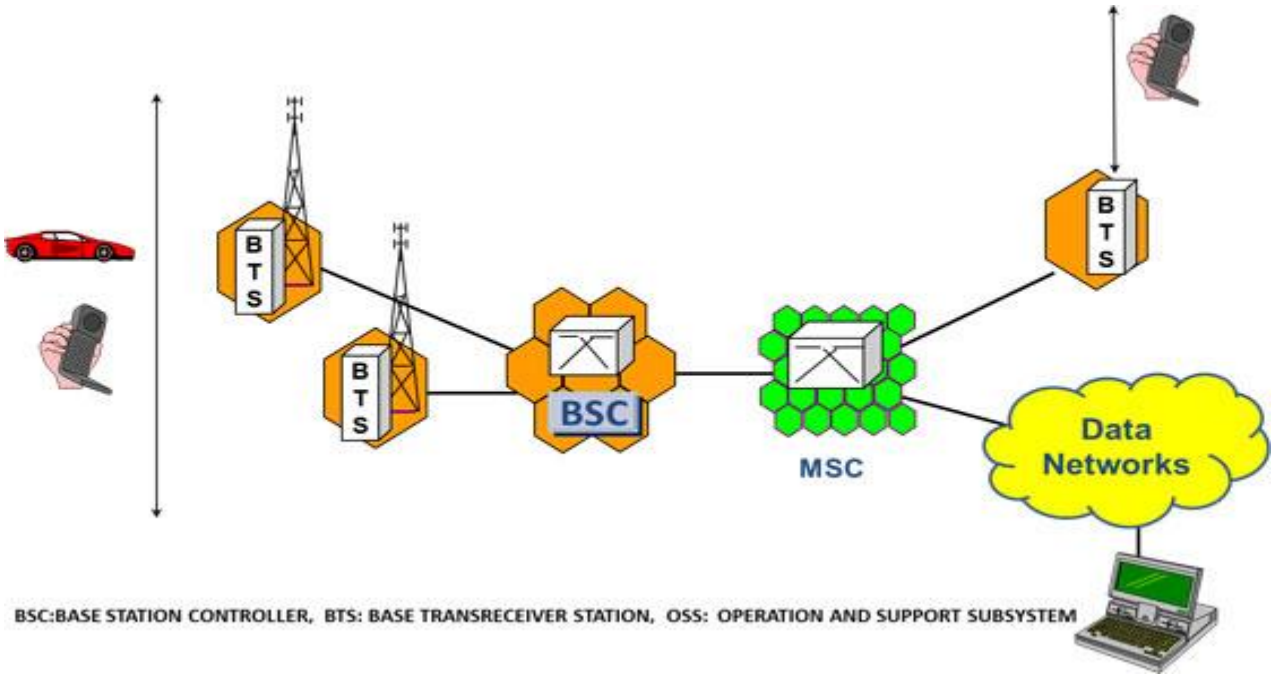
Table 4.1.3. Company-wise Statistics for Factors influencing customers for choice of Service Provider

Statistics										
Group			discount	value added services	customer care	tariffs	network quality	celebrity endorsement	availability	internet
Airtel	N	Valid	4	13	5	12	13	4	7	4
		Missing	21	12	20	13	12	21	18	21
	Mean		**4.00**	**1.69**	**3.60**	**1.67**	**1.62**	**5.00**	**3.29**	**4.25**
	Std. Deviation		2.160	1.377	1.342	1.073	.870	2.160	1.604	2.630
	Sum		16	22	18	20	21	20	23	17
	Rank		**6**	**3**	**5**	**2**	**1**	**8**	**4**	**7**
Idea	N	Valid	4	5	5	3	11	7	19	8
		Missing	21	20	20	22	14	18	6	17
	Mean		3.50	3.60	4.00	1.67	1.55	2.00	1.74	4.13
	Std. Deviation		1.000	2.074	1.871	1.155	.688	1.414	.933	2.475
	Sum		14	18	20	5	17	14	33	33
	Rank		**5**	**6**	**7**	**2**	**1**	**4**	**3**	**8**
Vodafone	N	Valid	6	5	10	6	16	6	11	9
		Missing	19	20	15	19	9	19	14	16
	Mean		**2.00**	**2.60**	**2.80**	**1.83**	**1.19**	**2.33**	**2.09**	**2.78**
	Std. Deviation		.000	.894	.919	1.329	.544	1.366	1.221	1.481
	Sum		12	13	28	11	19	14	23	25
	Rank		**3**	**6**	**8**	**2**	**1**	**5**	**4**	**7**
DoCoMo	N	Valid	10	12	14	14	20	17	11	11
		Missing	15	13	11	11	5	8	14	14
	Mean		**2.00**	**3.67**	**2.86**	**1.43**	**1.35**	**3.53**	**2.27**	**2.64**
	Std. Deviation		.943	2.060	1.351	.646	.933	1.281	1.009	1.502
	Sum		20	44	40	20	27	60	25	29
	Rank		**3**	**8**	**6**	**2**	**1**	**7**	**4**	**5**

Objective-1

4.2 To identify and compare network parameters of various Mobile operators.

Cell phones are defined as sophisticated radios. It is system having small cells, there is a base station and also a cell phone tower. Their huge frequencies allow many people to use cell phones simultaneously. As the user moves from cell to cell, the cellular calls get transferred from one base station to other thus maintaining continuity. For example, if you were traveling from Hyderabad to Warangal, your call would be transferred from several base stations along the way.



Mobile Equipment (ME) –It is the mobile phone. It should be able to work on cellular network. Earlier phones had single-band, new ones are dual-band, triple-band and even capable of operating on quad-band. The last one operates on all networks. Every mobile has a unique IMEI number.

Base Transceiver Station (BTS) – It is the antenna erected on top of tower. It is the entry point to the network and it carries the radio communication. A BTS typically covers a 120degree area and hence a tower with 3BTS can cover a 360degree area. Every BTS has a unique Cell identity which denotes the location area it is covering

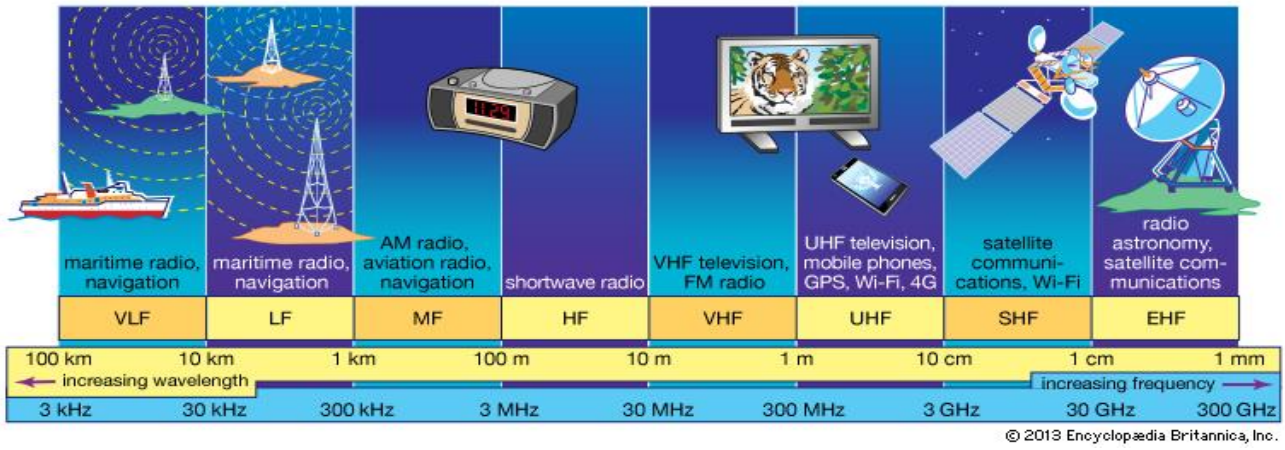
What is a Cell – A Cell is a base station transmitter having multiple RF channels. There is limit to the mobile subscribers a Cell can cover. It covers a cell radius ranging from start up-30kms to mature-1km

Capacity and Cell Size – The number of cells available to cover a geographic area is what constitutes as Cell Size and it is the capacity for the users. Depending on the prevailing customer traffic, the mobile operator varies the cell size.

Base Station Controller– Multiple BTS are controlled by a Base Station Controller (BSC). It controls the handovers from one BTS to other BTS within its range and also helps in administration of frequency, signal & power measurements etc. It acts as a Funnel to MSC.

Mobile Switching Center -(MSC) – A MSC is the base of entire GSM network as it handles all routing, setup of calls & all basic functions related to switching. Multipls BScs are handled by a MSC which also handles the handovers between 2 BSCs

4.2.1 Various Frequencies & their Use



4.2.2 Spectrum Allocation

Collection of different types of electromagnetic radiations is Spectrum. They are the radio frequencies on the signal communications travel. In India, radio frequencies are used in mobile communication, radio navigation, defence communication, space etc. We have to make optimum use of radio frequency since it is will deplete on excess usage but will get wasted if not used properly. The allocated spectrum to Indian mobile operators is not sufficient and hence there issues in call quality.

All Nations have right of use over the spectrum they have but to facilitate a standardization, all countries follow the guidelines set by International Telecommunication Union(ITU). This helps in matters related to International roaming. Also this is in sync with mobile handsets which are aligned to GSm 1800/900bands.

Tri-band and quad-band phones are also available to provide better roaming coverage. European triband mobiles use the GSM 900, 1800 and 1900 bands giving good coverage in Europe. Similarly North America tri-band phones use the 900, 1800 and 1900 GSM frequencies. Quad band phones use 850, 900, 1800 and 1900 MHz GSM frequency bands, i.e. the four bands and that allows global use.

4.2.3 Spectrum Bands and their Characteristics

Table 4.2 1. Spectrum band and their Characteristics

	800MHz	900MHz	1800MHz	2100MHz	2600MHz
Technology Options	3GPP and WiMAX	3GPP only			3GPP and WiMAX
Amount of Spectrum available	Mobile operators are likely to have access to smaller contiguous bands		Mobile operators are likely to have access to larger contiguous bands		
Coverage	Higher		Lower		
User experience	Lower speeds and less capacity available		Higher speeds and more capacity available		
Cell size	Greater Cell Size		Smaller Cell Size		
Cost	Lowest cost deployment of national network		Deployment up to 15 times more expensive than sub-1 GHz		
Value of Spectrum	High value		Lower value		

With existing technologies, the 900MHz is more superior to 1800MHz because of following:

- As per laws of physics, higher the wavelength, lower the frequency. This signifies that signals on bands of higher frequency will travel a lesser distance as compared to signals on lower frequency bands
- This propagation characteristic also makes signals transmitted on 900 Mhz more potent when it comes to indoor coverage. It has been proven that 900 Mhz band has 30-40 per cent better coverage than 1800 Mhz band.
- To make up for this, mobile companies on 1800 Mhz have to invest more in setting up larger number of base stations for similar coverage as in the 900 Mhz band. (Analysis Mason report)

  Analysis Mason report says:

  - Very high investment for movement from 900Mhz ecosystem to 1800Mhz ecosystem.
  - Additional installation of 1,71,954 base stations
  - Incremental capital expenditure of Rs.54,739crores
  - Another investment of Rs.26,653cr for new tower deployment

900 Mhz band has a superior commercial ecosystem than 1800 Mhz. That's because 900 Mhz frequency band has been in use for mobile communications globally for over 20 years and as a result technology standards have been better developed compared with 1800 Mhz band, which has been in use only recently.

4.2.4 The Spectrum band used by Telecom operators and the number of Base Stations (Manager Interviews):

Table 4.2.2 Spectrum Usages by TSPs

	Hyderabad-Secunderabad		Vishakhapatnam	
	Spectrum band (MHz frequency)	**No of Base Stations**	**Spectrum band**	**No of Base Stations**
Airtel	**900/1800 (60:40)**	**4025**	**900/1800 (85:15)**	**2280**
Vodafone	**1800**	**4989**	**1800**	**2435**
Idea	**900**	**4028**	**900**	**2280**
Tata DoCoMo	**1800**	**1800**	**1800**	**2444**

It is a fact that the distribution of Base stations will not be uniform across cities. Hence there will be areas with good coverage for one Operator while other areas with good coverage for other operators. If we assume uniform distribution of all base stations, we can safely assume that:

- **Idea is best in Hyderabad-Secunderabad in Call Clarity & Call drops. Airtel is No.2 & Vodafone No.3**

- **Idea & Airtel are best in Vishakhapatnam in Call Clarity & Call drops. Vodafone is No.3**

Objective 2

4.3 To study the impact of Distribution on selection of a Mobile Operator

Among the 40 distributors of various TSPs in Hyderabad, 6 have retailer coverage of less than 150 and have daily a sale between 100 and199 connections. 8 distributors with a retailers coverage of 150 to 250 outlets used sell 100 to 199 sales per day, 4 distributors with a retailers coverage of 150 to 250 outlets used sell 200 to 299 sales per day, similarly 10 distributors with a retailers coverage of 250 to 350 outlets used sell 200 to 299 sales per day. Likewise 3 distributors with a retailers coverage of 550 and outlets used sell 300 to 399 sales per day. It shows a linear relationship between size of retailer coverage and TSP sales.

Table: 4.3.1. Cross-tabulation between Size of Retailer Coverage and levels Sales

		Sales			Total
		100-199	200-299	300-399	
Retailer Coverage	Less than 150	6	0	0	6
	150-250	8	4	0	12
	250-350	1	10	2	13
	350-450	0	3	3	6
	550 and above	0	0	3	3
Total		15	17	8	40

Hypothesis 1: Higher retailer coverage results into higher sales for the Telecom Service Providers

A bivariate correlation analysis was carried out know the relationship between size of retailer coverage and level of TSP sales. A significant correlation ($r = 0.812$; $p < 0.001$) was found between size of retailer coverage and level of TSP sales. Which shows a strong and positive relationship between them. It means with increased size of retailer coverage, sales also get increased significantly and positively.

Table: 4.3.2. Correlations between size of retailer coverage and level of TSP sales.

		Retailer Coverage	Sales
Retailer Coverage	Pearson Correlation	1	.812**
	Sig. (2-tailed)		.000
	N	40	40
Sales	Pearson Correlation	.812**	1
	Sig. (2-tailed)	.000	
	N	40	40

**. Correlation is significant at the 0.01 level (2-tailed).

Furtherly, the Regression Analysis was carried out know the effect of retailer coverage on sales of the Telecom Service Providers (TSPs). The prediction model was found statistically significant, F (1, 38)=73.551;P = 0.001, and was accounted for approximately 66 percent of the variance in sales of TSPs (R^2=0.659, adjusted R^2=0.650). It means the predictor variable, i.e., retailer coverage was able to explain 66 percent of total variance of the dependent variable, i.e., TSP Sales.

Table: 4.3.3. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.812[a]	.659	.650	44.182

a. Predictors: (Constant), Retailer Coverage

For a good model fit, the difference between R^2 and adjusted R^2 should not be more than 0.05. It has been achieved (R^2 – adjusted R^2= 0.009 which was lesser than 0.05) for this study. An 81 percent (R=0.812) of correlation exists between the observed and predicted values of dependent variable. The summary of the regression model was presented in Table 4.3.3. The ANOVA table shows the model as significant at the 0.000 level (see Table 4.3.4).

Table: 4.3.4. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	143573.413	1	143573.413	73.551	.000[b]
	Residual	74176.587	38	1952.015		
	Total	217750.000	39			

a. Dependent Variable: Sales

b. Predictors: (Constant), Retailer Coverage

Standardized regression weights were considered as parameters estimates for this study because all the items were measured on the same scale. The t-values was found statistically significant (t= 4.854 ;P<0.01) with a regression coefficient of 0.812. Results were shown in Table 4.3.5.

Table: 4.3.5. Regression Coefficients retailer coverage

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	88.393	18.197		4.857	.000
	Retailer Coverage	.534	.062	.812	8.576	.000

a. Dependent Variable: Sales

Since the standardized coefficient was significant, H1 was accepted and can be concluded that retailer coverage has significant effect on TSP sales. From this we can draw an inference that higher the retailer coverage higher the sales for TSPs will be.

4.3.1 Companies wise sale of prepaid connections

An attempt was to know whether the sales of different TSPs are differ significantly or not and framed a hypothesis as follow;

H2: There is a significant difference in the sale of different Telecom Service Providers in Hyderabad

To test this hypothesis, one-way Analysis of Variance (ANOVA) was used to analyse whether there a significant difference exist among the sales of various TSPs. The result of descriptive statistics was shown in the following Tables 4.3.6 & 4.3.7.

Table: 4.3.6. Cross-tabulation between TSPs and their Sales

		Sales			Total
		100-199	200-299	300-399	
TSP	Airtel	1	1	8	10
	Idea	1	9	0	10
	Vodafone	4	6	0	10
	DoCoMo	9	1	0	10
Total		15	17	8	40

Descriptive statistics was carried out to know descriptive of four different groups of TSPs. Table shows that, the mean and standard deviation values for the sales of Airtel were found to be (M=320, SD= 67.49), for Idea sales these were to be (M=240, SD=31.6), for Vodafone sales these were to be (M=210, SD=51.4) and for DoCoMo these were to be (M= 160, SD= 31.6).

Table: 4.3.7. Descriptives for Sales of TSPs

	N	Mean	Std. Deviation	Std. Error
Airtel	10	320.00	67.495	21.344
Idea	10	240.00	31.623	10.000
Vodafone	10	210.00	51.640	16.330
DoCoMo	10	160.00	31.623	10.000
Total	40	232.50	74.722	11.815

Levene's test was conducted to know whether the homogeneity of variances of all the four TSP sales were equal or not and we found a significant Levene's statistics; F (3, 36) = 3.548, p = 0.024. See the Table 4.3.8It means, variances in sales of all four TSPs were not equal. Hence, it doesn't meet the criteria for assumption of homogeneity of variances

Table: 4.3.8. Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
3.548	3	36	.024

When it violets the assumption of homogeneity of variances, ANOVA would not be an appropriate test to carry out further analysis. For this, we use an alternate F-test i.e, Welch Statisitics was carried out and found a significant F value (3, 19.354) = 18.865 at p =.000.

Table: 4.3.9. ANOVA for Sales of TSPs

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	134750.000	3	44916.667	19.482	.000
Within Groups	83000.000	36	2305.556		
Total	217750.000	39			

Table: 4.3.10. Robust Tests of Equality of Means

	Statistic[a]	df1	df2	Sig.
Welch	18.865	3	19.354	.000

a. Asymptotically F distributed.

Which means that there is a significant difference among the sales the four TSPs. Hence H2 was accepted. But to know further which TSP differs significantly with another in terms of sales, Games-Howell Post Hoc test was carried. It provides a Multiple Comparisons analysis between and among the four groups (see Table 4.3.11).

Table : 4.3.11.Games-Howell Post Hoc test- Multiple Comparisons

(I) TSP	(J) TSP	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Airtel	Idea	80.000*	23.570	.022	10.65	149.35
	Vodafone	110.000*	26.874	.004	33.54	186.46
	DoCoMo	160.000*	23.570	.000	90.65	229.35
Idea	Airtel	-80.000*	23.570	.022	-149.35	-10.65
	Vodafone	30.000	19.149	.426	-25.22	85.22
	DoCoMo	80.000*	14.142	.000	40.03	119.97
Vodafone	Airtel	-110.000*	26.874	.004	-186.46	-33.54
	Idea	-30.000	19.149	.426	-85.22	25.22
	DoCoMo	50.000	19.149	.083	-5.22	105.22
DoCoMo	Airtel	-160.000*	23.570	.000	-229.35	-90.65
	Idea	-80.000*	14.142	.000	-119.97	-40.03
	Vodafone	-50.000	19.149	.083	-105.22	5.22

*. The mean difference is significant at the 0.05 level.

From the results of Games-Howell test, we can find that, there was a significant difference in sales of Airtel and all other TSPs. Likewise, a significant difference exist between sales of Idea and DoCoMo with a mean difference of 80 sales, Airtel and Idea with a mean difference

of 80 sales, Airtel and Vodafone with a mean difference 110 sales, Airtel and DoCoMo with a mean difference of 160 sales respectively.

Table 4.3.12: Cross-tabulation of franchisee prepaid sale per day

Prepaid sale in a Day								
			Prepaid Sale					Total
			less than 5	5-9	10-14	15-19	20 and above	
company	Airtel	Count	1	2	0	2	3	8
		% within company	12.5%	25.0%	.0%	25.0%	37.5%	100.0 %
	Idea	Count	5	3	0	0	0	8
		% within company	62.5%	37.5%	.0%	.0%	.0%	100.0 %
	Vodafone	Count	7	0	1	0	0	8
		% within company	87.5%	.0%	12.5%	.0%	.0%	100.0 %
	DoCoMo	Count	6	1	1	0	0	8
		% within company	75.0%	12.5%	12.5%	.0%	.0%	100.0 %
Total		Count	19	6	2	2	3	32
		% within company	59.4%	18.8%	6.3%	6.3%	9.4%	100.0 %

Table 4.3.12 shows that 3 Airtel franchise sale 20 and above prepaid connections, 2 franchises sale 15-19 connections &other 2franchises sale 5-9 connections. One Airtel franchise sale is less than 5 connections in a day. For Idea 5 franchise have less than 5 prepaid connection sale and 3 franchises have 5-9 connections sale per day. In case of Vodafone, out of 8 franchises, 7 franchises sale less than 5 prepaid connections per day and one franchise sale 10-14 connections per day. In case of DoCoMo, out of 8 franchises, 6 franchises sale less than 5 connections each day and 1 franchises sale 5-9 whereas the other one franchises sale 10-14 connections per day.

Table 4.3.13: Cross-tabulation of post-paid sale per day

Post-paid sale in a Day							
			Post-paid sale				Total
			less than 5	5-9	10-14	20 and above	
company	Airtel	Count	4	2	0	2	8
		% within company	50.0%	25.0%	.0%	25.0%	100.0%
	Idea	Count	2	3	3	0	8
		% within company	25.0%	37.5%	37.5%	.0%	100.0%
	Vodafone	Count	7	1	0	0	8
		% within company	87.5%	12.5%	.0%	.0%	100.0%
	DoCoMo	Count	7	1	0	0	8
		% within company	87.5%	12.5%	.0%	.0%	100.0%
Total		Count	20	7	3	2	32
		% within company	62.5%	21.9%	9.4%	6.3%	100.0%

Table 4.3.13 shows that out of 32 franchises, 4 Airtel franchises have less than 5 post-paid connection sale. 2 franchises have 5-9 post-paid connection sale and other 2 franchises have 20 and above post-paid connection sale per day. In case of Idea out of 8 franchises, 3 franchises have 5-9 post-paid connection sales in a day and other 3 franchises have 10-14 post-paid sales in a day. For Vodafone out of 8 franchises 7 franchises sale less than 5 post-paid connection in a day and one sale 5-9 post-paid connections in a day. In case of DoCoMo the sale of post-paid is same 7 franchises have sale less than 5 per day and 1 has 5-9 post-paid connections sale in a day. In summary out of 32 franchises, 20 franchises have sale of less than 5 connections in a day, 7 franchises have sale of 5-9 connections in a day, 3 have 10-14 connections per day and 2 franchises have 20 and above post-paid connections in a day. From both the sales data it can be concluded that all four companies have different sale and reach to customers.

Based on the data collected from retailers, distribution strength is analysed. This assessment involves most preferred brand as well as the brand which has more sales. The descriptive

statistics is shown in the Table 4.3.14 Ranks are assigned to all four companies based on their mean values. The lowest mean is ranked one.

4.3.2 Most preferred company

Table 4.3.14: Retailer statistics of Most preferred Company by customers

Statistics					
		Airtel	Idea	Vodafone	DoCoMo
N	Valid	120	119	114	115
	Missing	0	1	6	5
Mean		**1.21**	**2.07**	**3.43**	**3.28**
Std. Deviation		.483	.578	.787	.708
Minimum		1	1	1	1
Maximum		3	4	4	4
Sum		145	246	391	377
Rank		**1**	**2**	**4**	**3**

Responses gathered 120 retailers were analysed and results are presented in Table 5.10 shows that Airtel Company has got lowest mean which is 1.21 and ranked 1 by retailers that is Airtel is most preferred company followed by Idea in Hyderabad city. Idea has got 2.07 mean and got second rank in preference of brands. DoCoMo has got 3.28 mean which is ranked third by retailers and Vodafone is ranked fourth with 3.43 mean.

4.3.2.1 Sales of Mobile Operator

Table 4.3.15. Retailer statistics of sale of Mobile Operator

Statistics					
		Airtel	Idea	Vodafone	DoCoMo
N	Valid	118	117	115	114
	Missing	2	3	5	6
Mean		**1.23**	**2.02**	**3.69**	**3.04**
Std. Deviation		.591	.508	.680	.651
Minimum		1	1	1	1
Maximum		4	3	4	4
Sum		145	236	424	346
Rank		**1**	**2**	**4**	**3**

Based on the data gathered about the sale of mobile operator/company from 120 retailers of Hyderabad city results are interpreted. The mobile operator which has more sales is presented in Table 4.3.15. The resultant table is verifying the results about most preferred company. The Airtel has got more sales and has 1.23 mean value which is the lowest mean thus ranked one. Further idea has 2.02 mean value which is followed by the mean value of Airtel thus ranked second. DoCoMo has 3.04 mean value and ranked third further Vodafone has mean value of 3.69 and ranked fourth in sales.

Therefore it can be concluded that Airtel is most preferred company and has higher sales followed by Idea, DoCoMo and lastly Vodafone. Thus in summary it can be ascertain that the sale and the preference is brand depended hence the availability and reach of the brand in the market increases its sales and popularity.

Objective 3

4.4 To study the impact of Tariffs- Pre-paid and Post-paid on the selection of a Mobile Operator

Table 4.4.1. Distributor Statistics showing tariff comparison of four service Providers

Statistics							
Company			prepaid demanded FRC1	prepaid demanded FRC2	prepaid demanded FRC3	prepaid demanded FRC4	prepaid demanded FRC5
Airtel	N	Valid	10	0	6	8	8
		Missing	0	10	4	2	2
	Mean		**1.80**		**2.00**	**2.50**	**2.25**
	Std. Deviation		1.033		.000	.535	1.389
	Rank		**1**		**2**	**4**	**3**
Idea	N	Valid	0	10	6	4	2
		Missing	10	0	4	6	8
	Mean			**1.60**	**1.67**	**2.00**	**2.00**
	Std. Deviation			.843	.516	1.155	.000
	Rank			**1**	**2**	**3**	**4**
Vodafone	N	Valid	0	4	10	9	0
		Missing	10	6	0	1	10
	Mean			**1.00**	**1.40**	**2.33**	
	Std. Deviation			.000	.516	.500	
	Rank			**1**	**2**	**3**	
DoCoMo	N	Valid	10	10	0	0	0
		Missing	0	0	10	10	10
	Mean		**1.40**	**1.60**			
	Rank		**1**	**2**			

To compare about tariffs of different companies, which has most sale, means were compared and lowest mean is given rank one.

For Airtel FRC1, FRC2, FRC3, FRC4, FRC5 are 81, 82, 101, 121, and 151 respectively. Statistics in table 5.12 represent that most sale is of FRC 81 followed by FRC 101 and FRC 151, whereas FRC 121 has got fourth rank and has least demand. In case of Idea FRC1, FRC2, FRC3, FRC4, FRC5 are 31, 51, 53, 66, and 61 respectively. Results show that FRC 51

has highest demand followed by FRC 53 and FRC 66 although FRC 61 has least demand. For Vodafone FRC1, FRC2, FRC3, FRC4, FRC5 are 20, 52, 53, 121, and 151 respectively. Results represents that FRC 52 has highest sale followed by FRC 53, whereas FRC 121 has least demand. DoCoMo offers only two FRC that is FRC1, FRC2 are 67 and 222 respectively. Between these FRC 67 has high demand followed by FRC 222.

The data collected from franchises is analysed to compare about tariffs. Data represented in the table is about tariffs which has most sales of all four service providers. The lowest mean is given rank one and so on.

Table 4.4.2: Statistics showing tariff comparison of four service Providers at Franchises

Statistics							
Company			FRC1	FRC2	FRC3	FRC4	FRC5
Airtel	N	Valid	2	2	8	6	2
		Missing	6	6	0	2	6
	Mean		**1.00**	**3.00**	**1.50**	**2.00**	**1.00**
	Rank		**1**	**4**	**2**	**3**	**1**
Idea	N	Valid	5	8	4	0	0
		Missing	3	0	4	8	8
	Mean		**2.20**	**1.00**	**2.00**		
	Rank		**3**	**1**	**2**		
Vodafone	N	Valid	0	2	7	7	3
		Missing	8	6	1	1	5
	Mean			**2.00**	**1.14**	**2.14**	**2.33**
	Rank			**2**	**1**	**3**	**4**
DoCoMo	N	Valid	8	8	0	0	0
		Missing	0	0	8	8	8
	Mean		**1.00**	**2.00**			
	Rank		**1**	**2**			

Statistics in Table 4.4.2. represents that for Airtel service provider, most sales is of FRC 81 and FRC 151 followed by FRC 121, whereas FRC 82 has got fourth rank and has least demand. In case of Idea results show that FRC 51 has highest demand followed by FRC 53 although FRC 31 has least demand. For Vodafone results represents that FRC 53 has highest sale followed by FRC 52 and FRC 121, whereas FRC 151 has least demand. DoCoMo offers only two FRC between these FRC 67 has high demand followed by FRC 222.

Further the data collected from retailers is analysed. Results in the Table 4.4.2 shows that for Airtel service provider FRC 81 has highest demand followed by FRC 82 and FRC 101, whereas FRC 151 has least demand in the market. In case of Idea FRC 51 has highest demand followed by FRC 53. For Vodafone FRC 52 has high demand followed by FRC53 whereas FRC 121 has least sale in the market. In case of DoCoMo FRC 66 is highly demanded by customers followed by FRC 121.

To evaluate the relationship between factors that is company selection and prepaid plans. To validate the hypothesis that prepaid plans will leads to the choice of service provider by retailers and/or customers, correlation is carried out.

Table: 4.4.3. Correlation of company selection and prepaid plans

Prepaid Plans		
Airtel	Company selection	-.486
		.155
		10
Idea	Company selection	.797**
		.006
		10
Vodafone	Company selection	.716*
		.020
		10
DoCoMo	Company selection	.792**
		.006
		10

Note: Pearson correlation - *; Sig at 0.05 (2 tailed); N =10

From the table 4.4.3, it can be seen that there is a high significant positive correlation between company selection and prepaid plans, for Idea, Vodafone and DoCoMo, coefficient being 0.797, 0.716 and 0.792 respectively significant at 0.001 level and .05 level. This shows that good prepaid plan will increase the choice level for the service provider.

For Airtel, there is a negative correlation between company selection and prepaid plans correlation coefficient being -0.486, insignificant at 0.05 level. It shows that even good prepaid plan offered by a company will not have impact on company selection rather some other factors influence company selection.

In order to determine the strength of the relationship between one dependent variable which is usually denoted by Y and the independent variable which is changing, regression analysis is being used. Basically, the regression is of two types; linear regression and multiple regressions. This study uses linear regression where one independent variable used to explain and/or predict the dependent variable that denotes by Y. It is seen that in making choice for service provider, significant correlations exist between prepaid plans.

The general form of each type of regression is **Y = a + bX**

Where,

Y: Dependent variable,

X: independent variable used to predict Y,

a: is the intercept,

b: is the slope.

A positive correlation is found between company selection (dependent variable) and prepaid plans as independent variable (X_1). In order to measure the level of effect of independent factor on the dependent factor, for all four companies, regression analysis is carried out.

4.4.1 Impact of Prepaid plans on Company Selection

Good prepaid plans have an impact on company selection by customers and retailers. This is evident from the company wise correlation results which show that prepaid plans are significantly correlated with company selection. To test the hypothesis the regression analysis is done using distributor, franchises and retailers data. The Data received from distributors is analysed, the results are shown as follows:

Table 4.4.4: Distributor Regression Statistics for Impact of Prepaid Plans on Company Selection

Model Summary					
Company	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Airtel	1	.486[a]	.236	.140	3.984
Idea	1	.797[a]	.635	.589	1.455
Vodafone	1	.716[a]	.512	.451	1.440
DoCoMo	1	.792[a]	.627	.580	1.473

From the Table 4.4.4. the correlation coefficient (R) is found to be 0.486 whereas the "R square" is found to be 0.236 i.e. 23 percent of the variability can be brought in company selection with respect to prepaid plans for Airtel. For Idea correlation coefficient (R) is found

to be 0.797 whereas the coefficient of determination "R square" is found to be 0.635 i.e. 63.5 percent of the variability can be brought in company selection with respect to independent variable prepaid plans, however in case of Vodafone "R" is 0.716 and "R square" is 0.512 that is 51.2 percent. Whereas for DoCoMo coefficient of determination is 0.792, squared multiple correlation is found to be 0.627, that is 62.7 percent variance is explained by prepaid plans. Moreover for all four companies the "Adjusted R square" value of 0.140, 0.589, 0.451 and 0.580 indicates the representation of the sample to the population. To get confirmed, whether the test is significant or not, the following ANOVA table is shown.

Table 4.4.6. ANOVA distributor statistics for effect of prepaid plans on company selection

ANOVA							
Company	Model		Sum of Squares	df	Mean Square	F	Sig.
Airtel	1	Regression	39.153	1	39.153	2.467	.155[a]
		Residual	126.947	8	15.868		
		Total	166.100	9			
Idea	1	Regression	29.463	1	29.463	13.917	.006[a]
		Residual	16.937	8	2.117		
		Total	46.400	9			
Vodafone	1	Regression	17.414	1	17.414	8.399	.020[a]
		Residual	16.586	8	2.073		
		Total	34.000	9			
DoCoMo	1	Regression	29.141	1	29.141	13.430	.006[a]
		Residual	17.359	8	2.170		
		Total	46.500	9			

For sampled companies ANOVA table indicates regression value. For Airtel the regression value is much lower than the residual value and hence the independent values discussed are insufficient enough to influence the dependent variable. In other words the regression weight for prepaid plans in the prediction of company choice is not significantly different from zero at the 0.05 level of significance. Distributors reasoned that Airtel company has good image in the mind of customers and customers are more concerned of network quality which company promises rather prepaid plans. For Airtel prepaid plans cannot be the only reason of selecting Airtel service provider. Whereas for Idea, Vodafone and DoCoMo the regression value is much higher than the residual value and significant at 0.05 level, thus prepaid plans of these company is sufficient enough to influence the choice of

service provider. The next table is depicting the regression coefficients of the independent variables.

Table 4.4.6: Distributor Regression coefficient of prepaid plans vs. company selection

Coefficients							
company	Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
			B	Std. Error	Beta		
Airtel	1	(Constant)	26.704	5.249		5.087	.001
		Prepaid Plan	-.482	.307	-.486	-1.571	.155
Idea	1	(Constant)	10.443	2.708		3.856	.005
		Prepaid Plan	.582	.156	.797	3.731	.006
Vodafone	1	(Constant)	16.944	1.472		11.513	.000
		Prepaid Plan	.220	.076	.716	2.898	.020
Docomo	1	(Constant)	10.689	1.916		5.578	.001
		Prepaid Plan	.351	.096	.792	3.665	.006

It is inferred that in order to influence retailers and customer for choice of particular service provider the attention is to be concentrated on prepaid plans. As it can be seen from the result table that for Airtel the significance value is 0.155 which is higher than the definite probability value 0.05. But for other three service provider prepaid plans have impact on company selection as the significance value is lower than 0.05. This coefficient table provides different set of regression equation for predicting response variable.

To calculate the effect of prepaid plans on company selection, the model can be framed from the coefficient table for all the three service providers as follows:

- Idea : CS = 10.443 + 0.582 × PRP
- Vodafone : CS = 16.944 + 0.220× PRP
- DoCoMo : CS = 10.689 + 0.351× PRP

From the equation it is confirm that if the prepaid plans value will increase by one the selection of service provider will also increase by 0.582 in case of Idea, for Vodafone it will increase by 0.220 and for DoCoMo it will increase by 0.351.

Further to study the impact of prepaid plans on selection of service provider the data collected from franchises is analysed and results are as follows:

Table 4.4.7: Franchisee Regression Statistics for Impact of Prepaid Plans on Company Selection

Model Summary					
company	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Airtel	1	.767[a]	.588	.520	3.58033
Idea	1	.766[a]	.587	.518	.51658
Vodafone	1	.763[a]	.583	.513	2.68824
DoCoMo	1	.713[a]	.508	.426	4.22330

From Table 4.4.7., the coefficient of determination "R square" is found to be high, for Airtel it is 0.767, Idea 0.766, Vodafone 0.763 and for DoCoMo it is 0.713. Thus for Airtel the predictor prepaid plans on selection of service provider explains 58.8 percent of its variance. In other words, the error variance of selection of service provider/company selection is approximately 42 percent itself. In case of Idea prepaid plans on the selection of service provider explains 58.7 percent of its variance. Whereas in case of Vodafone and DoCoMo, 58.3 and 50.8 percent of variance is explained by prepaid plans, therefore the error variance of service provider selection is approximately 42 and 49 percent.

Table 4.4.8: Franchisee ANOVA statistics for level of prepaid plans on company selection

ANOVA							
Company	Model		Sum of Squares	df	Mean Square	F	Sig.
Airtel	1	Regression	109.962	1	109.962	8.578	.026[a]
		Residual	76.913	6	12.819		
		Total	186.875	7			
Idea	1	Regression	2.274	1	2.274	8.521	.027[a]
		Residual	1.601	6	.267		
		Total	3.875	7			
Vodafone	1	Regression	60.515	1	60.515	8.374	.028[a]
		Residual	43.360	6	7.227		
		Total	103.875	7			

DoCoMo	1	Regression	110.482	1	110.482	6.194	.047[a]
		Residual	107.018	6	17.836		
		Total	217.500	7			

ANOVA Table 4.4.8 is explaining significance values for all four service providers that is 0.026, 0.027, 0.028 and 0.47 are lesser than the defined "p value (0.05)" of the model. For Airtel with the regression value is 109.962 and F value 8.578 at 1, 6 degree of freedom (df). In case of Idea regression value 2.274 and F value is 8.521 at 1,6 degree of freedom. For Vodafone regression value is 60.515 and F value is 8.374 at 1,6 degree of freedom, whereas for DoCoMo regression value is 110.428 and F value is 6.149 at 1, 6 degree of freedom. In all four cases the regression value is much higher than the residual value with the significance lesser than the definite p=0.05 significance level. This infer that means are significantly different from zero, in other words this establishes the fact that according to franchise's responses good prepaid plan is an important factor influencing customers in determining the choice of service provider.

Table 4.4.9: Franchisee Regression coefficient of prepaid plans vs. company selection

Coefficients[a]							
Company	Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
			B	Std. Error	Beta		
Airtel	1	(Constant)	6.065	6.295		.963	.373
		Prepaid Plan	.610	.208	.767	2.929	.026
Idea	1	(Constant)	23.718	1.414		16.774	.000
		Prepaid Plan	-.158	.054	-.766	-2.919	.027
Vodafone	1	(Constant)	-7.436	10.690		-.696	.513
		Prepaid Plan	1.264	.437	.763	2.894	.028
Docomo	1	(Constant)	-1.593	9.101		-.175	.867
		Prepaid Plan	1.097	.441	.713	2.489	.047

From the coefficient table, fitted model to calculate the effect of prepaid plans on choice of service provider (CS) can be predicted as:

Airtel : CS = 6.065 + 0.610 × PRP

Idea : CS = 23.718+ 0.158 × PRP

Vodafone : CS = 7.436 + 1.264 × PRP

DoCoMo : CS = 1.539 + 1.097 × PRP

This infers that good prepaid plans offered by service providers will increase the chance for service provider to be selected by the customers.

The data about all four companies is analysed in the retailers perspective is shown in Table 4.4.10.

Table 4.4.10: Retailer Regression Statistics for Impact of Prepaid Plans on Company Selection

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Airtel	.631[a]	.398	.393	1.95014
Idea	.638	.407	.402	2.18361
Vodafone	.756[a]	.571	.568	2.38571
DoCoMo	.785[a]	.616	.612	2.46798

Results showing relationship between selection of service provider/company selection and prepaid plans is 0.631, 0.638, 0.756 and 0.785 for Airtel, Idea, Vodafone and DoCoMo respectively.

Table 4.4.10. is depicting R square value 0.398, 0.407, 0.568 and 0.616 infer that predictor prepaid plans is attributed to 39.8, 40.7, 56.8 and 61.2 percent variance on selection of service provider for Airtel, Idea, Vodafone and DoCoMo separately. Moreover the "Adjusted R square" value indicates the representation of the sample to the population. To get confirmed, whether the test is significant or not, the ANOVA in Table 4.4.11 is shown.

Table 4.4.11: Retailer ANOVA statistics for level of prepaid plans on company selection

ANOVA						
Model		Sum of Squares	Df	Mean Square	F	Sig.
Airtel	Regression	297.167	1	297.167	78.140	.000
	Residual	448.758	118	3.803		
	Total	745.925	119			
Idea	Regression	385.725	1	385.725	80.896	.000
	Residual	562.642	118	4.768		
	Total	948.367	119			
Vodafone	Regression	895.383	1	895.383	157.317	.000
	Residual	671.609	118	5.692		
	Total	1566.992	119			
DoCoMo	Regression	1151.060	1	1151.060	188.979	.000
	Residual	718.731	118	6.091		
	Total	1869.792	119			

F values for all four service providers is, Airtel 297.167 at 1, 118 degree of freedom, for Idea 385.725 at 1, 118 df, for Vodafone 895.383 at 1, 118 degree of freedom and for DoCoMo 1151.060 at 1, 118 degree of freedom is significant at the .05 level of significance. Therefore the dependent variable is well defined by the independent variable at five percent level; consequently the whole model is weighty. The coefficient of independent variable against the dependent variable is mentioned in the table below.

Table 4.4.12: Retailer Regression coefficient of prepaid plans vs. company selection

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
Airtel	(Constant)	4.774	2.016		2.368	.020
	Prepaid Plan	.812	.092	.631	8.840	.000
Idea	(Constant)	6.202	1.644		3.772	.000
	Prepaid Plan	.704	.078	.638	8.994	.000
Vodafone	(Constant)	4.192	1.921		2.183	.031
	Prepaid Plan	1.145	.091	.756	12.543	.000
DoCoMo	(Constant)	7.077	1.943		3.642	.000
	Prepaid Plan	1.247	.091	.785	13.747	.000

The regression equation for the predictor prepaid plans will be different for all four service providers;

Airtel: $SC = 4.774 + 0.812 \times PRP$

Idea: $SC = 6.202 + 0.704 \times PRP$

Vodafone: $SC = 4.192 + 1.145 \times PRP$

DoCoMo: $SC = 7.077 + 1.247 \times PRP$

From here it is confirm that if the company offers good plans the chances for selection of service providers will increase.

4.5 Post-Paid Plans and TSP selection

Table 4.5.1: Franchisee Statistics of Post-paid Plans of all four Mobile Operators

Statistics							
Company			Postpaid Plan-1	Postpaid Plan-2	Postpaid Plan-3	Postpaid Plan-4	Postpaid Plan-5
Airtel	N	Valid	2	8	6	0	4
		Missing	6	0	2	8	4
	Mean		**1.00**	**1.25**	**2.33**		**3.00**
	Rank		**1**	**2**	**3**	**-**	**4**
Idea	N	Valid	7	4	1	8	0
		Missing	1	4	7	0	8
	Mean		**1.14**	**1.75**	**3.00**	**2.25**	
	Rank		**1**	**2**	**4**	**3**	**-**
Vodafone	N	Valid	6	6	2	1	4
		Missing	2	2	6	7	4
	Mean		**1.33**	**2.17**	**3.00**	**2.00**	**1.25**
	Rank		**2**	**4**	**5**	**3**	**1**
DoCoMo	N	Valid	6	7	1	0	7
		Missing	2	1	7	8	1
	Mean		**1.17**	**1.71**	**1.00**		**4.29**
	Rank		**2**	**3**	**1**	**-**	**4**

To compare about postpaid plans of all four companies, which has high demand, means were compared and lowest mean given rank one.

For Airtel Postpaid Plans; PP-1, PP-2, PP-3, PP-4 and PP-5 are 199, 299, 399, 599, and family plan respectively. Statistics in table 5.35 represent that most sale is of plan199 followed by postpaid plan 299 and postpaid plan 399, whereas family plan is new plan offerd by a company and has got fourth rank. In case of Idea PP-1, PP-2, PP-3, PP-4 and PP-5 are 249,299,399,499 and 899 respectively. Results show that postpaid plan 249 has highest demand followed by postpaid plan 299 and 499 although postpaid plan 399 has least demand. For Vodafone PP-1, PP-2, PP-3, PP-4, PP-5 are 666, 999, AP corp premium, AP 99 and AP super999 respectively. Results represents that postpaid plan AP super999 has highest sale followed by plan 666, AP 99 and 999 whereas plan AP corp premium has least demand.

DoCoMo offers PP-1, PP-2, PP-3, PP-4, and PP-5 are Power199, Smart249, Desire999, Family999 and Unlimited Plan respectively where Desire 999 has high demand followed by plan Power 199 and Smart 249 whereas unlimited plan has got least demand.

4.5.1 Effect of Post-paid

H4: Post-paid plans have significant effect on selection of Telecom Service Providers.

The Regression Analysis was carried out know the effect of post-paid plans on section of Telecom Service Providers (TSPs). The prediction model was found statistically significant, F (1, 58) =122.4; P<0.001, and was accounted for approximately 68 percent of the variance in selection of TSPs (R^2=0.679, adjusted R^2=0.824). It means the predictor variable, i.e., Post-paid plans were able to explain 68 percent of total variance of the dependent variable, i.e., selection of TSPs.

Table 4.5.2: Regression Model Summary for Post-paid Plans

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.824[a]	.679	.673	.760

a. Predictors: (Constant), Postpaid Plans

For a good model fit, the difference between R^2 and adjusted R^2 should not be more than 0.05. It has been achieved (R^2 – adjusted R^2= 0.006 which was lesser than 0.05) for this study. An 82 percent (R=0.824) of correlation exists between the observed and predicted values of dependent variable. The summary of the regression model was presented in Table 4.5.2. The ANOVA table shows the model as significant at the 0.000 level (see Table 4.5.3).

Table 4.5.3 : ANOVA for Post-Paid Plans

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	70.801	1	70.801	122.460	.000[b]
	Residual	33.533	58	.578		
	Total	104.333	59			

a. Dependent Variable: Selection of TSP

b. Predictors: (Constant), Postpaid Plans

Standardized regression weights were considered as parameters estimates for this study because all the items were measured on the same scale. The t-values was found statistically

significant (t= 11.06 ;P<0.01) with a regression coefficient of 0.824. Results were shown in Table 4.5.4.

Table 4.5.4: Regression Coefficients for Post-Paid Plans

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.575	.226		2.541	.014
	Post-Paid Plans	.765	.069	.824	11.066	.000

a. Dependent Variable: Selection of TSP

Since the standardized coefficient was significant, H4 was accepted and can be concluded that Post-paid plans have significant effect on selection of TSP.

Table 4.5.5: Cross-tabulation of sales of franchisee Post-paid Plans for all four Mobile Operators

			Post-paid sale				Total
			less than 5	5-9	10-14	20 and above	
Company	Airtel	Count	4	2	0	2	8
		% within company	50.0%	25.0%	.0%	25.0%	100.0%
	Idea	Count	2	3	3	0	8
		% within company	25.0%	37.5%	37.5%	.0%	100.0%
	Vodafone	Count	7	1	0	0	8
		% within company	87.5%	12.5%	.0%	.0%	100.0%
	DoCoMo	Count	7	1	0	0	8
		% within company	87.5%	12.5%	.0%	.0%	100.0%
Total		Count	20	7	3	2	32
		% within company	62.5%	21.9%	9.4%	6.3%	100.0%
Chi-Square = 20.171		Df = 9			Sig.= 0.017		

Based on the responses gathered from franchises the sale of postpaid connection is evaluated. Rresults in the table shows that for Airtel out of 8 franchises, four franchises sale less than 5 postpaid connections and other 2 franchises sale 5-9, whereas rest two franchises sale above 20 connections in a day. In case of Idea out of 8 franchises, two franchises sale less than 5 connections in a day, 3franchises sale 5-9 connections whereas other 3franchises sale 10-14 connections in a day. For Vodafone and DoCoMo out of 8 franchises, 7 franchises sale less than 5 connections in a day and other 1 franchise sale 5-9 connections in a day. To evaluate the effect of company on postpaid sales chi-square test is carried out. Chi-square calculated value to this matrix is 20.171 at 9 degrees of freedom, p=0.017, which is lesser than definite 0.05 level of significance, which implies that the alternative hypothesis is accepted and can conclude that postpaid connection is associated with the selection of service provider/company.

4.5.2 Post-paid bills deposited

Table 4.5.6: Cross-tabulation of franchisee Post-paid Bill Deposits for all four Mobile Operators

			Postpaid bill deposits						Total
			less than 20	20-39	40-59	60-79	80-100	more than 100	
Company	Airtel	Count	0	4	2	0	0	2	8
		% within company	.0%	50.0%	25.0%	.0%	.0%	25.0%	100.0%
	Idea	Count	3	1	1	0	3	0	8
		% within company	37.5%	12.5%	12.5%	.0%	37.5%	.0%	100.0%
	Vodafone	Count	2	3	0	1	2	0	8
		% within company	25.0%	37.5%	.0%	12.5%	25.0%	.0%	100.0%
	DoCoMo	Count	6	2	0	0	0	0	8
		% within company	75.0%	25.0%	.0%	.0%	.0%	.0%	100.0%
Total		Count	11	10	3	1	5	2	32
		% within company	34.4%	31.3%	9.4%	3.1%	15.6%	6.3%	100.0%

While analyzing about postpaid bill deposits by customers at franchises, results in the Table 4.5.6. shows that in case of Airtel out of 8 franchises, 4 franchises deposits 20-39 postpaid bills in a day and 2 franchises deposits 40-59 bills in a day whereas other 2 franchises deposits more than 100 bills in a day. For Idea results represent that out of 8 franchises 3 franchises deposits less than 20 bills and other 3 franchises deposits 80-100 bills whereas 1 franchise deposits 20-39 bills in a day and other 1 franchise deposit 40-59 bills in a day. In case of Vodafone out of 8 franchises, 3 franchises deposit 20-39 bills and 1franchise deposit 60-79 bills in a day whereas 2 franchise deposit 80-100 bills and other 2 franchise deposit less than 20 bills in a day. For DoCoMo out of 8 franchises 6 franchises deposit less than 20 bills and 2 franchises deposit 20-39 bills in a day. These statistics shows that Airtel has high sale in postpaid services followed by Idea and Vodafone, however DoCoMo has lowest sale.

`

4.5.3 Impact of Post-paid plans in selection of service provider

Customers in the present scenario are very conscious about plans. As the information about plans of all service providers is easily accessible which influence customers to seek information and compare plans. Customers generally choose plan which give them maximum benefits. Therefore there is a need to evaluate the impact of postpaid plans in selection of service provider, the regression is carried out. Before checking for impact of independent factor, variables are been analysed for their relationship.

Results in the Table 4.5.7 shows that there is a positive significant relationship found between selection of service provider/company selection and postpaid plan. Coefficient is been 0.759, 0.738, 0.795 and 0.883 for Airtel, Idea, Vodafone and DoCoMo respectively.

Table 4.5.7: Franchisee regression Statistics for Impact of Post-paid Plans on Company Selection

Model Summary					
Company	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Airtel	1	.759[a]	.576	.506	3.63278
Idea	1	.738[a]	.544	.468	.54273
Vodafone	1	.795[a]	.633	.571	2.52172
DoCoMo	1	.883[a]	.780	.744	2.82098

In the case of Airtel, Idea, Vodafone and DoCoMo corresponding squared multiple correlations are 0.576, 0.544, 0.633 and 0.780 which implies that postpaid plans explains 57.6, 54.4, 63.3 and 78 percent of its variance on selection of service provider respectively.

The model is significant at the 0.05 level of significance. Therefore the dependent variable is well defined by the independent variable at 0.029, 0.037, 0.018 and 0.004 significance levels respectively; consequently the whole model is perfect fit. The regression values and F values of independent variables against the dependent variable are mentioned in Table 4.5.8.

Table 4.5.8: Franchisee ANOVA statistics for level of Post-paid plans on company selection

ANOVA							
Company	Model		Sum of Squares	Df	Mean Square	F	Sig.
Airtel	1	Regression	107.692	1	107.692	8.160	.029[a]
		Residual	79.183	6	13.197		
		Total	186.875	7			
Idea	1	Regression	2.108	1	2.108	7.156	.037[a]
		Residual	1.767	6	.295		
		Total	3.875	7			
Vodafone	1	Regression	65.721	1	65.721	10.335	.018[a]
		Residual	38.154	6	6.359		
		Total	103.875	7			
DoCoMo	1	Regression	169.752	1	169.752	21.331	.004[a]
		Residual	47.748	6	7.958		
		Total	217.500	7			

Table 4.5.9: Franchisee Regression coefficient of Post-paid plans vs. company selection

Coefficients[a]							
Company	Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
			B	Std. Error	Beta		
Airtel	1	(Constant)	41.048	6.062		6.772	.001
		Postpaid Plan	-.769	.269	-.759	-2.857	.029
Idea	1	(Constant)	23.703	1.536		15.428	.000
		Postpaid Plan	-.158	.059	-.738	-2.675	.037
Vodafone	1	(Constant)	42.949	6.154		6.979	.000
		Postpaid Plan	-.875	.272	-.795	-3.215	.018
DoCoMo	1	(Constant)	-17.830	8.413		-2.119	.078
		Postpaid Plan	1.816	.393	.883	4.619	.004

The corresponding regression weight estimate for Airtel, Idea, Vodafone and DoCoMo is 0.769, 0.158, 0.875 and 1.816 with a standard error of about 0.269, 0.059, 0.272 and 0.393 respectively. For all the four service providers, i.e., Airtel, Idea, Vodafone and DoCoMo, the regression weight for postpaid plans in the prediction of selection of telecom service provider is significantly different from zero at the 0.005 level. The regression equation for the predictor postpaid plans will be different for all the four service providers:

- Airtel: CS = 41.048 + 0.769 × PP
- Idea: CS = 23.703 + 0.158 × PP
- Vodafone: CS = 42.949 + 0.875 × PP
- DoCoMo: CS = 17.830 + 1.816 × PP

From the results, it can be concluded that if the company offers good postpaid plans then the chances of selection of particular service provider will also increase.

4.6 Customer Care Services of Various TSPs

To do a detailed comparison of Customer Care offered by various mobile operators

Before evaluating impact of customer care services on selection of service provider the degree of relationship between customer care services provided by service provider and selection of service provider is been analysed using the data collected from Distributors, franchises and retailers. Correlation is carried out.

From the above table, it can be seen that there is a high significant positive correlation between selection of service provider/company selection and customer care services, for Airtel coefficient being 0.637 significant at 95% level of significance. For Vodafone coefficient being 0.740 and DoCoMo it is 0.817 at 99% level of significance. This shows that good customer services will increase the choice of service provider.

In case of Idea, there is a significant negative correlation between company selection and customer care service, correlation coefficient being -.0.789 significant at 99 % level of significance.

Table 4.6.1: Correlation of company selection and Customer Care Services

Customer Care		
Airtel	Company Selection	.637*
		.047
		10
Idea	Company Selection	-.789**
		.007
		10
Vodafone	Company Selection	.740*
		.014
		10
DoCoMo	Company Selection	.817**
		.004
		10

Note: Pearson correlation - *; Sig at 0.05 (2 tailed); N =10

It shows that changes in customer care services will have no effect on selection of service provider.

4.6.1 Impact of customer care services on selection of service provider

To evaluate the impact of customer care services in selection of service provider regression analysis is carried out using data collected from distributors. It is evident from the correlation that the factor is significantly correlated with company selection.

H5: Customer care services have significant effect on selection of Telecom Service Providers.

The Regression Analysis was carried out know the effect of customer care services have effect on selection of the Telecom Service Providers (TSPs). The prediction model was found statistically significant, $F(1, 58)=73.551; P<0.001$, and was accounted for approximately 43 percent of the variance in selection of TSPs ($R^2=0.661$, adjusted $R^2=0.436$). It means the predictor variable, i.e., customer care services was able to explain 43 percent of total variance of the dependent variable, i.e., selection of TSPs.

Table 4.6.2: Regression Model Summary for Customer Care

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.661[a]	.436	.427	1.007

a. Predictors: (Constant), Customer Care

For a good model fit, the difference between R^2 and adjusted R^2 should not be more than 0.05. It has been achieved (R^2 – adjusted R^2= 0.009 which was lesser than 0.05) for this study. A 66 percent (R=0.66) of correlation exists between the observed and predicted values of dependent variable. The summary of the regression model was presented in Table 4.6.2. The ANOVA table shows the model as significant at the 0.000 level (see Table 4.6.3).

Table 4.6.3: ANOVA for Customer Care

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	45.535	1	45.535	44.916	.000[b]
	Residual	58.798	58	1.014		
	Total	104.333	59			

a. Dependent Variable: Selection of TSP

b. Predictors: (Constant), Customer Care

Standardized regression weights were considered as parameters estimates for this study because all the items were measured on the same scale. The t-value was found statistically significant (t= 6.70 ;P<0.01) with a regression coefficient of 0.661. Results were shown in Table .4.6.4.

Table 4.6.4: Regression Coefficients for Customer Care

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.896	.317		2.828	.006
	Customer Care	.608	.091	.661	6.702	.000

a. Dependent Variable: Selection of TSP

Since the standardized coefficient was significant, H5 was accepted and can be concluded that customer care services has significant effect on selection of TSPs.

Table 4.6.5: Distributors Regression Statistics for Impact of Customer Care Services on Company Selection

Model Summary					
company	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Airtel	1	.637[a]	.406	.332	3.117
Idea	1	.789[a]	.623	.576	1.479
Vodafone	1	.740[a]	.547	.491	1.387
DoCoMo	1	.817[a]	.667	.625	1.391

It can be seen from the result Table 4.6.5 Model Summary that correlation is high between company selection and customer care services which is .637, 0.789, 0.740 and 0.817 for Airtel, Idea, Vodafone and DoCoMo respectively. For Airtel independent variable is explaining only 40.6 percent, for Idea 62.3 percent, in case of Vodafone 54.7 and for DoCoMo is 66.7 percent variance in company selection. Adjusted R square value is close to R square value which is indicating that model is closely fit with responses of the population.

Table 4.6.6: Distributors ANOVA statistics for level of Customer Care Services on company selection

ANOVA							
Company	Model		Sum of Squares	Df	Mean Square	F	Sig.
Airtel	1	Regression	53.169	1	53.169	5.472	.047[a]
		Residual	77.731	8	9.716		
		Total	130.900	9			
Idea	1	Regression	28.900	1	28.900	13.211	.007[a]
		Residual	17.500	8	2.188		
		Total	46.400	9			
Vodafone	1	Regression	18.615	1	18.615	9.680	.014[a]
		Residual	15.385	8	1.923		
		Total	34.000	9			
DoCoMo	1	Regression	31.020	1	31.020	16.032	.004[a]
		Residual	15.480	8	1.935		
		Total	46.500	9			

To check the accuracy ANOVA table is shown the regression statistics is significant and well below than .05 implies the test is accurate. The F value is 5.472, 13.211, 9.680 and 16.032 at

1, 8 degree of freedom for Airtel, Idea, Vodafone and DoCoMo respectively. And these values are significant at .05 level of significance which validates the whole model.

Table 4.6.7: Distributors Regression coefficient of Customer Care Services vs. company selection

Coefficients							
Company	Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			B	Std. Error	Beta		
Airtel	1	(Constant)	2.423	7.536		.322	.756
		Customer Care Services	.615	.263	.637	2.339	.047
Idea	1	(Constant)	51.000	8.432		6.049	.000
		Customer Care Services	-1.063	.292	-.789	-3.635	.007
Vodafone	1	(Constant)	11.903	2.957		4.026	.004
		Customer Care Services	.351	.113	.740	3.111	.014
DoCoMo	1	(Constant)	9.067	2.152		4.214	.003
		Customer Care Services	.301	.075	.817	4.004	.004

Model came out to calculate the effect level of customer care services on the selection of service provider from coefficient table for all four service providers with varied values that is;

Airtel : $CS = 2.423 + 0.615 \times CC$

Idea : $CS = 51.000 + (-1.063) \times CC$

Vodafone : $CS = 11.903 + 0.351 \times CC$

DoCoMo : $CS = 9.067 + 0.301 \times CC$

Assumption from the table is that because p value is less than .05 the fit model is significant and the customer care services provided by companies has significant impact in determining the choice of service provider/company, specifically good customer care services positively influence chance for service provider to be selected.

To further evaluate the impact of customer care service on selection of service provider the data collected from franchises is been analysed, results are shown in tables below.

Table 4.6.8: Franchisee Regression Statistics for Impact of Customer Care Services on Company Selection

Model Summary					
Company	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Airtel	1	.445[a]	.198	.065	4.99666
Idea	1	.677[a]	.458	.368	.59169
Vodafone	1	.383[a]	.147	.005	3.84315
DoCoMo	1	.393[a]	.154	.013	5.53664

It can be seen from the table 4.6.8 that the customer care services can explain only 19.8, 14.7 and 15.4 percent variance in selection of service provider. Although in case of Idea customer care service explain about 45.8 percent variance, which is high. Thus as per franchises of Idea, customer care services does have impact on selection of service provider to some extent.

Table 4.6.9: Franchisee ANOVA statistics for level of Customer Care Services on company selection

ANOVA							
Company	Model		Sum of Squares	Df	Mean Square	F	Sig.
Airtel	1	Regression	37.076	1	37.076	1.485	.269[a]
		Residual	149.799	6	24.967		
		Total	186.875	7			
Idea	1	Regression	1.774	1	1.774	5.068	.065[a]
		Residual	2.101	6	.350		
		Total	3.875	7			
Vodafone	1	Regression	15.256	1	15.256	1.033	.349[a]
		Residual	88.619	6	14.770		
		Total	103.875	7			
DoCoMo	1	Regression	33.574	1	33.574	1.095	.336[a]
		Residual	183.926	6	30.654		
		Total	217.500	7			

Table 4.6.10: Regression coefficient of Customer Care Services vs. company selection

Coefficients						
Company	Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
Airtel	(Constant)	9.056	12.492		.725	.496
	Customer Care Services	.478	.393	.445	1.219	.269
Idea	(Constant)	20.877	.594		35.135	.000
	Customer Care Services	-.061	.027	-.677	-2.251	.065
Vodafone	(Constant)	18.306	5.169		3.542	.012
	Customer Care Services	.202	.198	.383	1.016	.349
DoCoMo	(Constant)	9.471	10.954		.865	.420
	Customer Care Services	.525	.501	.393	1.047	.336

Results in the Table 4.6.10. shows that significance value is very high than the definite value p=0.05, this infer as per franchises the customer care services do not have impact in the selection of service provider. Whereas in case of Idea the significance level is close to p=0.05 which represents that as per Idea franchises customer care services have impact on the selection of telecom service providers to the some extent.

Table 4.6.11: Regression Statistics for Impact of Customer Care Services on Company Selection

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Airtel	.468	.219	.213	2.13437
Idea	.531	.282	.276	1.83615
Vodafone	.333	.111	.104	1.71048
DoCoMo	.490	.240	.233	2.41480

Results of all the four companies are shown in Table 4.6.11. The independent variable i.e. customer care services in the case of Airtel, Idea and DoCoMo defines 21.3, 27.6 and 23.3 percent of the variability in the dependent variable. Whereas in the case of Vodafone, it

defines only 10.4 percent of variability in selection of service provider which is lower than the other three service provider. Thus it can be concluded that as per retailers' perception customer care services also contribute in the selection of service provider though the variability is low.

Table 4.6.12: Retailer ANOVA statistics for level of Customer Care Services on company selection

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
Airtel	Regression	151.037	1	151.037	33.154	.000[a]
	Residual	537.555	118	4.556		
	Total	688.592	119			
Idea	Regression	156.537	1	156.537	46.430	.000[a]
	Residual	397.829	118	3.371		
	Total	554.367	119			
Vodafone	Regression	43.131	1	43.131	14.742	.000[a]
	Residual	345.236	118	2.926		
	Total	388.367	119			
DoCoMo	Regression	217.209	1	217.209	37.249	.000[a]
	Residual	688.091	118	5.831		
	Total	905.300	119			

The regression weight for Customer care services in the prediction of selection of service provider/company selection is significantly different from zero at the 0.001 level of significance. Similarly, for Airtel, Idea, Vodafone and DoCoMo residual value is much higher than regression value and F value is 33.154, 46.430, 14.742 and 37.249 at 1, 118 degree of freedom respectively and the probability value is less than the 0.001 level of significance. For all four service provider the level of significance is 0.001, which is less than definite 'p-value (0.05)'. Thus, the applied test is significant which establishes the fact that customer care services is also a contributing factor in influencing customers for determining the choice of service provider as this infer from Table 4.6.13.

Table 4.6.13: Regression coefficient of Customer Care Services vs. company selection

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
Airtel	(Constant)	17.161	1.008		17.018	.000
	Customer Care Services	.229	.040	.468	5.758	.000
Idea	(Constant)	10.414	1.740		5.984	.000
	Customer Care Services	.450	.066	.531	6.814	.000
Vodafone	(Constant)	15.804	1.548		10.210	.000
	Customer Care Services	.229	.060	.333	3.840	.000
DoCoMo	(Constant)	11.530	1.673		6.893	.000
	Customer Care Services	.388	.064	.490	6.103	.000

To calculate the effect of customer care services on selection of service provider/company selection, the model can be framed from the coefficient table for all four service providers as follows:

- Airtel : CS = 17.161 + 0.229 × CC
- Idea : CS = 10.414 + 0.450 × CC
- Vodafone : CS = 15.804 + 0.229 × CC
- DoCoMo : CS = 11.530 + 0.388 × CC

This means that good followup with the customers using customer care services will increase the chances for selection of service provider.

4.7 Value Added Services (VAS) of Various TSPs

For detailed evaluation of value added services provided by mobile operators the data is gathered from franchises, distributors and retailers. Further, firstly the data collected from franchises is analysed and results are shown in Table 4.7.1.

Table 4.7.1: Franchisee Company Wise Cross-tabulation of Value Added Services

			Number of VAS					Total
			less than 5	5-9	10-14	15-19	20 and above	
company	Airtel	Count	3	4	0	0	1	8
		% within company	37.5%	50.0%	.0%	.0%	12.5%	100.0%
	Idea	Count	1	0	7	0	0	8
		% within company	12.5%	.0%	87.5%	.0%	.0%	100.0%
	Vodafone	Count	1	2	4	0	1	8
		% within company	12.5%	25.0%	50.0%	.0%	12.5%	100.0%
	DoCoMo	Count	4	2	1	1	0	8
		% within company	50.0%	25.0%	12.5%	12.5%	.0%	100.0%
Total		Count	9	8	12	1	2	32
		% within company	28.1%	25.0%	37.5%	3.1%	6.3%	100.0%
Pearson Chi-Square = 22.000			df = 12		Sig. = 0.038			

Result in Table 4.7.1 shows that incase of Airtel, out of 8 franchises, 4 franchises sale 5-9 value added services. 3 franchises sale less than 5 VAS and only 1 franchise sale 20 and more value added services in a day. For Idea out of 8 franchises, 7 franchises sale 10-14 VAS and only 1 franchise sale less than 5 value added services. For Vodafone out of 8 franchises 4 franchises sale 10-14 VAS, 2 franchises sale 5-9 VAS whereas 1 franchise sale 20 and above and other 1 franchise sale less than 5 value added services in a day. In case of DoCoMo out of 8 franchises, 4 franchises sale less than 5 value added services, 2 franchises sale 5-9 VAS and 1 franchise sale 10-14 VAS the other 1 franchise sale 15-19 value added services in a

day. This infers that Idea has most demand for its value added services, followed by Vodafone and Airtel. However DoCoMo has least demand of its value added services. Chi-square calculated value to this matrix is 22.000 at 12 {(4-1) = 3, (5-1) = 4, 3×4=12} degrees of freedom, p=0.038, which is lesser than definite p=0.05 level of significance, which implies that the alternate hypothesis is accepted and value added services has an effect on selection of service provider.

Literature reveals that value added service has an impact on selection of mobile operator. In order to determine the role of VAS in making a choice for a particular Service provider, the data gathered from distributors is analysed. The correlation results in Table 5.4 shows that there is high positive correlation between value added services and company selection. Coefficient is being 0.899, 0.721, 0.755 and 0.741 for Airtel, Idea, Vodafone and DoCoMo. This relationship is ground to analyse the strength of relationship. Further to validate the hypothesis that VAS has impact on selection of service provider, for this regression analysis is carried out.

4.7.1 Effect of Value Added Services on selection of Telecom Service Providers.

***H6: Value Added Services have significant effect on selection of Telecom Service Providers*.**

The Regression Analysis was carried out know the effect of value added services on selection of Telecom Service Providers (TSPs). The prediction model was found statistically significant, F (1, 58)=26.7;P < 0.001, and was accounted for approximately 31 percent of the variance in selection of TSPs (R^2=0.315, adjusted R^2=0.304). It means the predictor variable, i.e., value added services was able to explain 31.5 percent of total variance of the dependent variable, i.e., selection of TSPs

Table 4.7.2 : Model Summary for Value Added Services(VAS)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.562[a]	.315	.304	1.110

a. Predictors: (Constant), Value Added Services(VAS)

For a good model fit, the difference between R^2 and adjusted R^2 should not be more than 0.05. It has been achieved (R^2 – adjusted R^2= 0.011 which was lesser than 0.05) for this

study. A 56 percent (R=0.562) of correlation exists between the observed and predicted values of dependent variable. The summary of the regression model was presented in Table 4.7.2. The ANOVA table shows the model as significant at the 0.000 level (see Table 4.7.3).

Table 4.7.3: ANOVA test for Value Added Services(VAS)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	32.908	1	32.908	26.723	.000[b]
	Residual	71.425	58	1.231		
	Total	104.333	59			

a. Dependent Variable: Selection of TSP

Standardized regression weights were considered as parameters estimates for this study because all the items were measured on the same scale. The t-values was found statistically significant (t= 5.16 ;P<0.01) with a regression coefficient of 0.812. Results were shown in Table 4.7.4.

Table 4.7.4: Regression Coefficients for Value Added Services(VAS)

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.352	.320		4.220	.000
	Value Added Services(VAS)	.532	.103	.562	5.169	.000

a. Dependent Variable: Selection of TSP

Since the standardized coefficient was significant, H6 was accepted and can be concluded that value added services has significant effect on selection of TSPs.

4.7.2 Difference among various TSP retailers with regards to Value Added service

H6a: There is a significant difference exist among various TSPs with respect to effect of Value added services on selection of TSPs.

To test this hypothesis, one-way Analysis of Variance (ANOVA) was used to analyse whether there a significant difference exist among various TSPs with respect to effect of Value added services on selection of TSPs.

Levene's test was conducted to know whether the homogeneity of variances of all the four TSP selection were equal or not and we found an insignificant Levene's statistics; F (3, 56) = 2.50, p = 0.068. It means, variances in selection of all four TSPs were equal. Hence, it meets the criteria for assumption of homogeneity of variances.

Table 4.7.5: Test of Homogeneity of Variances for Value Added Services (VAS)

Levene Statistic	df1	df2	Sig.
2.504	3	56	.068

When the assumption of homogeneity of variances was met, ANOVA would be an appropriate test to carry out further analysis and found a significant F value (3, 56) = 1.09; p =.358.

Table 4.7.6: ANOVA for Value Added Services(VAS)

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	6.450	3	2.150	1.097	.358
Within Groups	109.733	56	1.960		
Total	116.183	59			

Which means that there was no significant difference among various TSPs with respect to effect of Value added services on selection of TSPs.. Hence H6a was rejected.

Table 4.7.7: Regression analysis for impact of VAS on selection of Mobile Operator

Model Summary					
Company	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Airtel	1	.899[a]	.809	.785	1.992
Idea	1	.721[a]	.520	.460	1.668
Vodafone	1	.755[a]	.569	.516	1.353
DoCoMo	1	.741[a]	.549	.493	1.618

The resultant Table 4.7.7 shows that correlation is high between VAS and selection of mobile operator, R square values being 0.809 for Airtel, 0.520 for Idea, 0.569 for Vodafone and 0.549 for DoCoMo, and thus it explains 80.9, 52, 56.9 and 54.9 percent of variance in selection of mobile operator for Airtel, Idea, Vodafone and DoCoMo respectively. Adjusted

R square value is close to R square value which indicates that the model closely fits the responses of the population.

Table 4.7.8: ANOVA statistics for level of VAS on company selection

ANOVA							
Company	Model		Sum of Squares	Df	Mean Square	F	Sig.
Airtel	1	Regression	134.356	1	134.356	33.860	.000[a]
		Residual	31.744	8	3.968		
		Total	166.100	9			
Idea	1	Regression	24.143	1	24.143	8.678	.019[a]
		Residual	22.257	8	2.782		
		Total	46.400	9			
Vodafone	1	Regression	19.360	1	19.360	10.579	.012[a]
		Residual	14.640	8	1.830		
		Total	34.000	9			
DoCoMo	1	Regression	25.545	1	25.545	9.753	.014[a]
		Residual	20.955	8	2.619		
		Total	46.500	9			

The regression values and F values of all four mobile operators for value added services in the prediction of selection of mobile operator/service provider/company selection is significantly different from zero at the 0.001, 0.019, 0.012 and 0.014 significance level which is well below the definite ‘p-value (0.05) implying that the test is accurate.

Table 4.7.9: Regression coefficient of Value Added Services vs. company selection

Coefficients							
Company	Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
			B	Std. Error	Beta		
Airtel	1	(Constant)	5.572	2.342		2.379	.045
		Value Added Services	.559	.096	.899	5.819	.000
Idea	1	(Constant)	31.543	3.819		8.259	.000
		Value Added Services	.464	.158	.721	-2.946	.019
Vodafone	1	(Constant)	10.880	3.141		3.464	.009
		Value Added Services	.440	.135	.755	3.253	.012
DoCoMo	1	(Constant)	10.442	2.317		4.506	.002
		Value Added Services	.295	.095	.741	3.123	.014

To calculate the effect of value added services on selecetion of mobile operator, the model can be framed from the coefficient table for all four service providers are as follows:

- Airtel : CS =5.572 + 0.559 × VAS
- Idea : CS = 31.543+ 0.464 × VAS
- Vodafone : CS = 10.880 + 0.440 × VAS
- DoCoMo : CS = 10.442 + 0.295 × VAS

It is inferred from Table 4.7.9 that the fit model is significant because p-value is less than 0.05 and value added service has a significant impact in determining the choice of mobile operator.

This is evident of fact from the previous results that the ‘value added services’ is significantly correlated with ‘selection of service provider’ and has significant impact on it. To validate the results of distributors data, the test is further carried out using data collected from franchises. And the results are shown in tables below.

Table 4.7.10: Regression Statistics for Impact of VAS on Company Selection

Model Summary					
Company	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Airtel	1	.718[a]	.516	.435	3.88204
Idea	1	.728[a]	.530	.452	.55089
Vodafone	1	.749[a]	.561	.488	2.75661
DoCoMo	1	.817[a]	.667	.611	3.47453

From the Table 4.7.10 Model Summary it can be seen that for measuring level of relation between selection of service provider/mobile operator/ company selection as a dependent factor and value added services as an independent factor, the value of R square for Airtel is 0.516 that is 51.6 percent of variance of selection of mobile operator is explained by value added services. In case of Idea the value of R square is 0.530 that is 53 percent of variance is explained by VAS in selection of service provider. For Vodafone R square value is 0.561 infer that 56.1 percent of its variance is explained by VAS. However for DoCoMo the value of R square is 0.667 this indicates 66.7 percent variance of selection of mobile operator is explained by value added services.

Table 4.7.11: ANOVA statistics for level of VAS on selection of mobile operator

ANOVA							
Company	Model		Sum of Squares	df	Mean Square	F	Sig.
Airtel	1	Regression	96.454	1	96.454	6.400	.045[a]
		Residual	90.421	6	15.070		
		Total	186.875	7			
Idea	1	Regression	2.054	1	2.054	6.769	.041[a]
		Residual	1.821	6	.303		
		Total	3.875	7			
Vodafone	1	Regression	58.282	1	58.282	7.670	.032[a]
		Residual	45.593	6	7.599		
		Total	103.875	7			
DoCoMo	1	Regression	145.066	1	145.066	12.016	.013[a]
		Residual	72.434	6	12.072		
		Total	217.500	7			

To get confirmed, whether the test is significant or not The following ANOVA table shows that for the overall regression, In case of Airtel F = 6.400 at 1, 6 degrees of freedom, with a probability .045 this is below p= 0.05. For Idea: F = 6.769 at 1, 6 degrees of freedom, with a probability .041 well below 0.05. For Vodafone: F= 7.670 at 1,6 degree of freedom significance is 0.032 and in case of DoCoMo F=12.016 at 1,6 df significance is 0.013 which is well below than definite p=0.05. So the regression is significant. From the table it can be seen that in all four companies 'value added service' value is significantly different from zero. Therefore, it can be concluded that VAS has significant impact on selection of service provider.

Table 4.7.12: Regression coefficient of VAS vs. selection of mobile operator

Coefficients							
Company	Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
			B	Std. Error	Beta		
Airtel	1	(Constant)	-15.664	15.787		-.992	.359
		Value Added Services	1.239	.490	.718	2.530	.045
Idea	1	(Constant)	22.837	1.250		18.271	.000
		Value Added Services	-.110	.042	-.728	-2.602	.041
Vodafone	1	(Constant)	-9.973	12.081		-.826	.441
		Value Added Services	1.247	.450	.749	2.769	.032
DoCoMo	1	(Constant)	5.898	4.457		1.323	.234
		Value Added Services	.691	.199	.817	3.466	.013

To calculate the effect of VAS on selection of mobile operator, the model can be framed from the coefficient table for all four service providers:

- Airtel : CS =15.664 + 1.239 × VAS
- Idea : CS = 22.837+ 0.110 × VAS
- Vodafone : CS = 9.973 + 1.247 × VAS
- DoCoMo : CS = 5.896 + 0.691 × VAS

Table 4.7.13: Statistics showing value added services of mobile operators at Retailers

Statistics					
		VAS-Airtel	VAS-Idea	VAS-Vodafone	VAS-DoCoMo
N	Valid	120	120	120	120
	Missing	0	0	0	0
Mean		**1.57**	**1.38**	**1.25**	**1.21**
Std. Deviation		.994	.745	.612	.533
Minimum		1	1	1	1
Rank		**4**	**3**	**2**	**1**
Maximum		5	5	5	5
Sum		188	165	150	145

As the resultant Table 4.7.13 represents that DoCoMo has high sale of value added services followed by Vodafone and Idea. However Airtel being market leader has least demand for value added services. Table 4.7.13 represents that in case of Airtel out of 120 retailers, 83 retailers sale less than 5 'value added services' in a day, 17 retailers sale 5-9 VAS and 11 retailers sale 10-14 VAS in a day. Whereas 7 retailers sale 15-19 VAS and only 2 sale 20 and above VAS in a Day. In case of Idea the sales of VAS is little high about 90 retailers sale less than 5 value added services, 18 retailers sale 5-9 VAS and 10 retailers sale 10-14 value added services in a day. One retailer sale 15-19 VAS and the rest 1 retailer sale 20 & above 'value added service' in a day. For Vodafone 97 retailer sale less than 5 VAS and 19 retailer sale 5-9 value added services. 2 retailer sale 10-14, one retailer sales 15-19 VAS and the rest one sale 20 and above 'value added services' in a day. In case of DoCoMo 99 retailer sale less than 5 value added services and 19 retailer sale 5-9 value added services. Between rest 2 retailers one sale 10-14value added services and the other one sale 20 and above value added services.

Table 4.7.14: Regression Statistics for Impact of value added services on Company Selection

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Airtel	.199[a]	.039	.031	2.36752
Idea	.217[a]	.047	.039	2.76712
Vodafone	.354[a]	.126	.118	1.69649
DoCoMo	.197[a]	.039	.031	3.90258

Comparison of all four mobile operators showing that the independent variable in case of Airtel , Idea and DoCoMo is defining 3.1, 3.9 and 3.1 percent of the variability in the dependent variable that is selection of mobile operator. Whereas in the case of Vodafone, value added services is defining 11.8 percent of variability in selection of service provider/mobile operator/company selection which is higher than the other three service providers. Thus it can be concluded that to the some extent value added services also plays a key role in selection of telecom service provider. The dependent variable is well defined by the independent variable at five percent level. The coefficients of independent variable against the dependent variable are mentioned in Table 4.7.15.

Table 4.7.15: ANOVA statistics for level of value added services on company selection

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
Airtel	Regression	27.182	1	27.182	4.849	.030[a]
	Residual	661.410	118	5.605		
	Total	688.592	119			
Idea	Regression	44.848	1	44.848	5.857	.017[a]
	Residual	903.518	118	7.657		
	Total	948.367	119			
Vodafone	Regression	48.754	1	48.754	16.940	.000[a]
	Residual	339.613	118	2.878		
	Total	388.367	119			
DoCoMo	Regression	72.636	1	72.636	4.769	.031[a]
	Residual	1797.156	118	15.230		
	Total	1869.792	119			

To get confirmed, whether the test is significant or not, the following ANOVA table is shown. The F calculated value from the ANOVA table for all mobile operators is

Airtel: F = 4.849 at 1,118 degree of freedom, level of significance is .030.

Idea: F= 5.857 at 1, 118 degree of freedom level of significance is.017.

Vodafone : F= 16.940 at 1, 118 degree of freedom level of significance is .001, and for DoCoMo: F= 4.769 at 1, 118 degree of freedom level of significance is .031 which is less than definite p value (.05) thus applied test is significant, this established the fact that value added services also has impact in selecting mobile operator.

Table 4.7.16: Regression coefficient of value added services vs. company selection

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
Airtel	(Constant)	20.112	1.266		15.888	.000
	Value Added Services	.116	.053	.199	2.202	.030
Idea	(Constant)	15.828	2.104		7.523	.000
	Value Added Services	.220	.091	.217	2.420	.017
Vodafone	(Constant)	17.084	1.136		15.036	.000
	Value Added Services	.199	.048	.354	4.116	.000
DoCoMo	(Constant)	12.554	3.182		3.946	.000
	Value Added Services	.292	.134	.197	2.184	.031

From the coefficient table, regression equation to calculate the effect of VAS on selection of service provider can be predicted as:

Airtel : CS = 20.112 + 0.116 × VAS

Idea : CS = 15.828 + 0.220 × VAS

Vodafone : CS = 17.084 + 0.199 × VAS

DoCoMo:CS = 12.554 + 0.292 × VAS

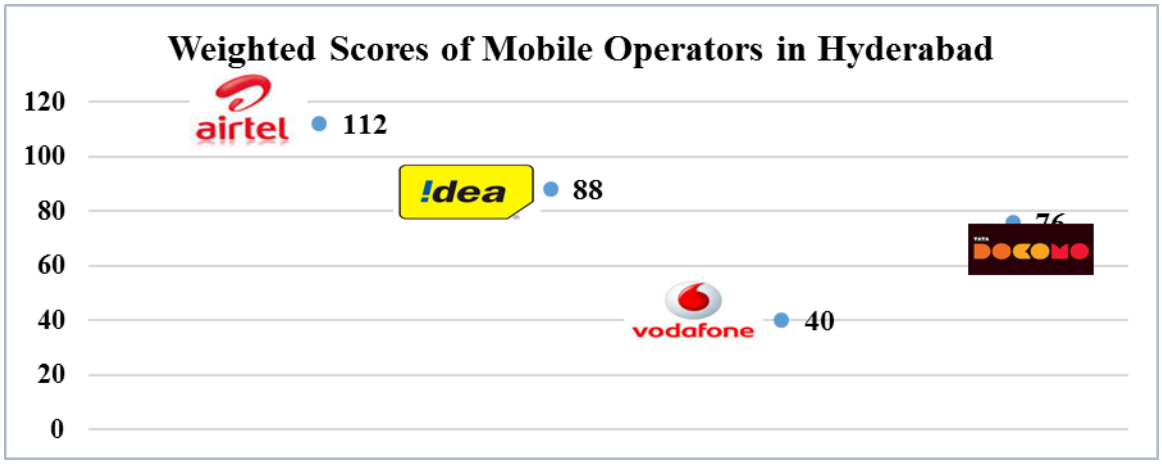
4.8 Objective 5: To find the best Mobile Operator in Hyderabad

An attempt was made to find out the best mobile operator in Hyderabad. Respondents were requested rank their preferred choice of brand on 4 point ranking scale. A total of 120 respondents have given their preference in the form of ranks. Then ranks were analyzed by assigning them respective weightages by multiplying with number of responses. It was found that Airtel was given score of 112, Idea was given a score of 88, Vodafone was given a score of 40 and DoCoMo was given a score of 76. Based on these score final ranks were assigned in ascending order of scores.

Table 4.8.1: Ranking of Mobile operators in Hyderabad

Hyderabad		Ranks								Total Weighted Score	Rank
		R1	Weighted Score	R2	Weighted Score	R3	Weighted Score	R4	Weighted Score		
Company	Airtel	22	88	8	24	0	0	0	0	112	1
	Idea	4	16	20	60	6	12	0	0	88	2
	Vodafone	0	0	2	4	8	16	20	20	40	4
	DoCoMo	4	16	8	24	18	36	0	0	76	3
Total		30		38		32		20		120	

Among all these TSPs, Airtel was chosen as the most preferred choice of mobile operator in Hyderabad with a highest of 112, then Idea has been occupied the second rank by scoring next highest score of 88. DoCoMo and Vodafone were placed in third and fourth position with the scores of 76 and 40 respectively.



4.9 Conclusion

This chapter deals with the analysis and interpretation of the objectives set for the study for Hyderabad -Secunderabad. Before continuing with objectives this chapter has analysis of 100 customers about their preference pattern for selection of service providers. Result shows that network quality and tariffs influences customer in selection of service providers. This result infers that service provider should give special attention to these two factors. The first objective based on exploratory study that is "To analyze the Network parameters of different operators in A.P. as it leads to call quality, call drops etc." the findings explains that Idea is the best mobile operator in Hyderabad-Secunderabd for call clarity and call drops followed by Airtel and Vodafone.

Further this chapter dealt with objectives concerning the impact of prepaid plans, value added service and customer care services which has positive influence on selection of service provider. To determine this effect regression analysis is carried out and results shows that companies which has image in customer's mind of providing good prepaid plans has higher sales. And those mobile operators who provide lucrative and worthy prepaid plans have positive influence in getting selected by customers. Value added services and focussed customer care services have significant impact on selection of service provider. This chapter also explored the effect of coverage and reach on sale of prepaid connections. Results also show that sale differ with the company.

4.10 Results of Hypotheses

Table 4.10: Results of Hypotheses

SN	Hypotheses	Results
Hypothesis 1	Higher retailer coverage results into higher sales for Telecom Service Providers (TSPs).	Accepted
Hypothesis 2	There is a significant difference in the sales of different service providers.	Accepted
Hypothesis 3	Prepaid plans have a significant effect on selection of Telecom Service Providers (TSPs).	Accepted
Hypothesis 4	Post-paid paid plans have significant effect on selection of Telecom Service Providers (TSPs).	Accepted
Hypothesis 5	Customer care services have significant effect on selection of Telecom Service Providers.	Accepted
Hypothesis 6	Value Added Services have significant effect on selection of Telecom Service Providers.	Accepted

CHAPTER V

ANALYTICAL PERSPECTIVE OF SERVICE PROVIDER FOR VISHAKHAPATNAM

This chapter deals with the analysis and interpretation of second part of the research work based on the objectives and hypotheses framed. This chapter focuses on the findings, analysis and interpretation of responses of distributors, franchises and retailers of service providers which are Airtel, Idea, Vodafone and DoCoMo of Vishakhapatnam city.

In the previous chapter objective one is analysed for both the cities. Results of the exploratory study, based on the interviews of managers of the service providers explain that IDEA & AIRTEL are best in Vishakhapatnam in Call Clarity & Call drops whereas Vodafone is No.3.

5.1 Objective 2: Impact of Distribution on selection of a Mobile Operators in Vishakhapatnam

Among the 20 distributors of various TSPs in Vishakhapatnam, 2 have retailer coverage of less than 150 and have daily a sale between 100 and199 connections. 3 distributors with a retailers coverage of 150 to 250 outlets used sell 100 to 199 sales per day, 4 distributors with a retailers coverage of 150 to 250 outlets used sell 200 to 299 sales per day, similarly 6 distributors with a retailers coverage of 250 to 350 outlets used sell 200 to 299 sales per day. Likewise 1 distributor with a retailers coverage of 350-450 and outlets used sell 200 to 299 sales per day. It shows a linear relationship between size of retailer coverage and TSP sales.

Table 5.1.1 : Cross-tabulation between Size of Retailer Coverage and levels Sales

Sales in Vishakhapatnam		Sales			Total
		100-199	200-299	300-399	
Retailer Coverage	Less than 150	2	0	0	2
	150-250	3	4	0	7
	250-350	2	6	2	10
	350-450	0	1	0	1
	550 and above	0	0	0	0
Total		7	11	2	20

A bivariate correlation analysis was carried out know the relationship between size of retailer coverage and level of TSP sales. A significant correlation (r =0.487; p <0.05) was found between size of retailer coverage and level of TSP sales. Which shows a strong and positive relationship between them. It means with increased size of retailer coverage, sales also get increased significantly and positively.

Table 5.1.2: Correlations between Retailer Coverage and Sales

		Sales	Retailer Coverage
Sales	Pearson Correlation	1	.487*
	Sig. (2-tailed)		.029
	N	20	20
Retailer Coverage	Pearson Correlation	.487*	1
	Sig. (2-tailed)	.029	
	N	20	20

*. Correlation is significant at the 0.05 level (2-tailed).

5.1.1 Regression Analysis

The Regression Analysis was carried out know the effect of retailer coverage on sales of the Telecom Service Providers (TSPs). The prediction model was found statistically significant, F (1, 8)=5.6081;P = 0.029, and was accounted for approximately 24 percent of the variance in sales of TSPs (R^2=0.238, adjusted R^2=0.195. It means the predictor variable, i.e., retailer coverage was able to explain 24 percent of total variance of the dependent variable, i.e., TSP Sales.

Table 5.1.3 : Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.487[a]	.238	.195	57.296

a. Predictors: (Constant), Retailer Coverage

A 49 percent (R=0.487) of correlation exists between the observed and predicted values of dependent variable. The summary of the regression model was presented in Table 5.1.3. The ANOVA table shows the model as significant at the 0.05 level (see Table 5.1.4).

Table 5.1.4: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	18409.091	1	18409.091	5.608	.029[b]
	Residual	59090.909	18	3282.828		
	Total	77500.000	19			

a. Dependent Variable: Sales

b. Predictors: (Constant), Retailer Coverage

Standardized regression weights were considered as parameters estimates for this study because all the items were measured on the same scale. The t-values was found statistically significant (t=2.724 ;P<0.05) with a regression coefficient of 0.487. Results were shown in Table 5.15.

Table 5.1.5 : Regression Coefficients retailer coverage

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	122.727	45.049		2.724	.014
	Retailer Coverage	.409	.173	.487	2.368	.029

a. Dependent Variable: Sales

Since the standardized coefficient was significant, H1 was accepted and can be concluded that retailer coverage has significant effect on TSP sales. From this we can draw an inference that higher the retailer coverage higher the sales for TSPs will be.

5.2 Difference among the Sales of various TSPs

H2: There is a significant difference in the sale of different Telecom Service Providers in Vishakhapatnam

Table 5.2.1: Cross-tabulation of Sales of various TSPs.

		Sales			Total
		100-199	200-299	300-399	
TSPs	Airtel	1	2	2	5
	Idea	2	2	1	5
	Vodafone	4	1	0	5
	DoCoMo	2	1	2	5
Total		9	6	5	20

To test this hypothesis, one-way Analysis of Variance (ANOVA) was used to analyse whether there a significant difference exist among the sales of various TSPs in Vishakhapatnam. The result of descriptive statistics was shown in the following Table 5.2.2.

Table 5.2.2: Descriptives for of Sales of various TSPs.

	N	Mean	Std. Deviation	Std. Error
Airtel	5	270.00	44.721	20.000
Idea	5	250.00	70.711	31.623
Vodafone	5	210.00	54.772	24.495
DoCoMo	5	170.00	44.721	20.000
Total	20	225.00	63.867	14.281

The mean and standard deviation values for the sales of Airtel were found to be (M=270, SD= 44.7), for Idea these were to be (M=250, SD=70), for Vodafone these were to be (M=201, SD=54.7) and for DoCoMo these were to be (M= 170, SD= 44.7).

Table 5.2.3: Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
.257	3	16	.855

Levene's test was conducted to know whether the homogeneity of variances in sales of all the four TSP sales were equal or not. An insignificant Levene's statistics; F (3, 16) = .257, p = .855 was found (See the Table 5.2.3). It means, variances in sales of all four TSPs were

equal. Hence, it meets the criteria for assumption of homogeneity of variances. Then ANOVA test was carried out and found a significant F (3, 16) =3.278; p =.048 value (see Table 5.2.4).

Table 5.2.4: ANOVA

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	29500.000	3	9833.333	3.278	.048
Within Groups	48000.000	16	3000.000		
Total	77500.000	19			

Which means that sales all the four TSP differ significantly. Hence H2 was accepted and can be concluded that there was a significant difference exists among the sales of various TSPs in Vishakhapatnam.

But to know further which TSP differs significantly with another in terms of sales, Duncan Post Hoc test was carried out. It provides the details about the group differs from one another. (see Table 5.2.5).

Table 5.2.5: Duncan Post Hoc Test

TSP	N	Subset for alpha = 0.05	
		1	2
DoCoMo	5	170.00	
Vodafone	5	210.00	210.00
Idea	5		250.00
Airtel	5		270.00
Sig.		.265	.119

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 5.000.

From the results of Duncan Post Hoc test, we can find that, there was a difference exist among the sales of Airtel, Idea, Vodafone and DoCoMo. It indicates that Vodafone and DoCoMo have the low sales in Vishakhapatnam when compared to Airtel and Idea.

5.2.1 Companies wise sale of prepaid connections

Based on the data collected from Franchises about per day prepaid sale of all four companies is evaluated.

Table 5.2.6: Cross-tabulation of prepaid sale per day

Prepaid Sale in a day							
			prepaid sale				Total
			less than 5	5-9	10-14	15-19	
company	Airtel	Count	0	3	1	0	4
		% within company	.0%	75.0%	25.0%	.0%	100.0%
	Idea	Count	1	2	0	1	4
		% within company	25.0%	50.0%	.0%	25.0%	100.0%
	Vodafone	Count	3	1	0	0	4
		% within company	75.0%	25.0%	.0%	.0%	100.0%
	DoCoMo	Count	3	0	1	0	4
		% within company	75.0%	.0%	25.0%	.0%	100.0%
Total		Count	7	6	2	1	16
		% within company	43.8%	37.5%	12.5%	6.3%	100.0%

Table 5.2.6 shows that out of 4 Airtel franchises 3 Airtel franchise sale 5-9 prepaid connections and 1 franchises sale 10-14 connections in a day. For Idea out of 4 franchises 2 franchise have sale of 5-9 prepaid connection, 1 franchise have less than 5 connections sale per day and other one franchise have 15-19 prepaid connections in a day. In case of Vodafone, out of 4 franchises, 3 franchises sale less than 5 prepaid connections per day and one franchise sale 10-14 connections per day. In case of DoCoMo, out of 4 franchises, 3 franchises sale less than 5 connections each day and 1 franchises sale 10-14 prepaid connections per day.

Table 5.2.7: Cross-tabulation of post-paid sale per day

Post-paid sale in a Day								
			Post-paid sale					Total
			less than 5	5-9	10-14	15-19	20 and above	
Company	Airtel	Count	0	3	1	0	0	4
		% within company	.0%	75.0%	25.0%	.0%	.0%	100.0 %
	Idea	Count	0	2	1	0	1	4
		% within company	.0%	50.0%	25.0%	.0%	25.0%	100.0 %
	Vodafone	Count	3	1	0	0	0	4
		% within company	75.0%	25.0%	.0%	.0%	.0%	100.0 %
	DoCoMo	Count	3	0	0	1	0	4
		% within company	75.0%	.0%	.0%	25.0%	.0%	100.0 %
Total		Count	6	6	2	1	1	16
		% within company	37.5%	37.5%	12.5%	6.3%	6.3%	100.0 %

Table 5.2.7 shows that out of total 16 franchises, 3 Airtel franchises have 5-9 post-paid connection sale per day and 1 franchises have 10-14 post-paid connection sale per day. In case of Idea out of 4 franchises, 2 franchises have 5-9 post-paid connection sales in a day, 1 franchise have 10-14 post-paid sales in a day and other one franchise have 20 and above postpaid connection sale in a day. For Vodafone out of 4 franchises 3 franchises sale less than 5 post-paid connection in a day and one franchise sale 5-9 post-paid connections in a day. In case of DoCoMo the sale of post-paid is 3 franchises have sale less than 5 per day and 1 has 15-19 post-paid connections sale in a day. In summary out of 16 franchises, 6 franchises have sale of less than 5 connections in a day, 6 franchises have sale of 5-9 connections in a day, 2 have 10-14 connections per day, 1 franchises 15-19 postpaid connections sale and the other one have 20 and above post-paid connections sale in a day. From both the sales data it can be concluded that all four companies have different sale and reach to customers.

Based on the data collected from retailers, distribution strength is analysed. This assessment involves most preferred brand as well as the brand which has more sales. The descriptive

statistics is shown in the Table 5.2.2 Ranks are assigned to all four companies based on their mean values. The lowest mean is ranked one.

5.2.2 Most preferred company

Table 5.2.8: Retailer statistics of Most preferred Company by customers

Statistics					
		Airtel	**Idea**	**Vodafone**	**DoCoMo**
N	Valid	59	53	21	8
	Missing	1	7	39	52
Mean		**1.12**	**1.94**	**2.90**	**3.25**
Std. Deviation		.375	.362	.700	1.035
Minimum		1	1	1	1
Maximum		3	3	4	4
Sum		66	103	61	26
Rank		**1**	**2**	**3**	**4**

Responses gathered 60 retailers were analysed and results are presented in Table 6.5 shows that Airtel Company has got lowest mean which is 1.12 and ranked 1 by retailers that is Airtel is most preferred company followed by Idea in Vishakhapatnam. Idea has got 1.94 mean and got second rank in preference of brands. Vodafone has got 2.90 mean which is ranked third by retailers and DoCoMo is ranked fourth with 3.25 mean.

5.2.3 Sales of Mobile Operator

Table 5.2. 9: Statistics of sale of Mobile Operator

Statistics					
		Airtel	Idea	Vodafone	DoCoMo
N	Valid	50	20	4	3
	Missing	10	40	56	57
Mean		**1.04**	**1.55**	**2.00**	**1.67**
Std. Deviation		.198	.510	.816	.577
Minimum		1	1	1	1
Maximum		2	2	3	2
Sum		52	31	8	5
Rank		**1**	**2**	**4**	**3**

Based on the data gathered about the sale of mobile operator/company from 60 retailers of Vishakhapatnam city results are interpreted. The mobile operator which has more sales is dipicted in table 6.6. The results are verifying the results about most preferred company. The Airtel has got more sales and has 1.04 mean value which is the lowest mean thus ranked one. Further idea has 1.55 mean value which is followed by the mean value of Airtel thus ranked second. DoCoMo has 1.67 mean value and ranked third further Vodafone has mean value of 2.00 and ranked fourth in sales.

Therefore it can be concluded that Airtel is most preferred company and has higher sales followed by Idea, DoCoMo and lastly Vodafone. Thus in summary it can be ascertain that the sale and the preference is brand depended hence the availability and reach of the brand in the market increases its sales and popularity.

5.3 Objective 3: Impact of Tariffs- Pre-paid and Post-paid on the selection of a Mobile Operator

Table 5.3.1: Statistics showing tariff comparison of four service Providers

Statistics							
Company			prepaid demanded FRC1	prepaid demanded FRC2	prepaid demanded FRC3	prepaid demanded FRC4	prepaid demanded FRC5
Airtel	N	Valid	0	5	0	5	5
		Missing	5	0	5	0	0
	Mean			**1.00**		**2.00**	**3.00**
	Std. Deviation			.000		.000	.000
	Rank			**1**		**2**	**3**
Idea	N	Valid	0	5	5	5	0
		Missing	5	0	0	0	5
	Mean			**1.20**	**1.80**	**3.00**	
	Std. Deviation			.447	.447	.000	
	Rank			**1**	**2**	**3**	
Vodafone	N	Valid	0	5	5	4	1
		Missing	5	0	0	1	4
	Mean			**1.20**	**1.80**	**3.00**	**3.00**
	Std. Deviation			.447	.447	.000	
	Rank			**1**	**2**	**3**	**4**
DoCoMo	N	Valid	5	5	0	0	0
		Missing	0	0	5	5	5
	Mean		**1.60**	**1.40**			
	Std. Deviation		.548	.548			
	Rank		**2**	**1**			

To compare about tariffs of different companies, which has most sale, means were compared and lowest mean is given rank one.

For Airtel FRC1, FRC2, FRC3, FRC4, FRC5 are 81, 82, 101, 121, and 151 respectively. Statistics in Table 5.3.1 represent that most sale is of FRC 82 followed by FRC 121 and FRC 151, whereas FRC 81 and 121 has got least demand. In case of Idea FRC1, FRC2, FRC3, FRC4, FRC5 are 31, 51, 53, 66, and 61 respectively. Results show that FRC 51 has highest demand followed by FRC 53 and FRC 66 although FRC 31 and 61 has least demand. For Vodafone FRC1, FRC2, FRC3, FRC4, FRC5 are 20, 52, 53, 121, and 151 respectively.

Results represents that FRC 52 has highest sale followed by FRC 53, FRC 121 and FRC 151, whereas FRC 20 has least demand. DoCoMo offers only two FRC that is FRC1, FRC2 are 67 and 222 respectively. Between these FRC 222 has high demand followed by FRC 67.

The data collected from franchises is analysed to compare about tariffs. Data represented in the table is about tariffs which has most sales of all four service providers. The lowest mean is given rank one and so on.

Table 5.3.2: Statistics showing tariff comparison of four service Providers at Franchises

Statistics							
Company			prepaid demanded FRC1	prepaid demanded FRC2	prepaid demanded FRC3	prepaid demanded FRC4	prepaid demanded FRC5
Airtel	N	Valid	0	0	4	4	4
		Missing	4	4	0	0	0
	Mean				**1.00**	**2.00**	**3.00**
	Std. Deviation				.000	.000	.000
	Rank				**1**	**2**	**3**
Idea	N	Valid	0	4	4	0	0
		Missing	4	0	0	4	4
	Mean			**1.00**	**2.00**		
	Std. Deviation			.000	.000		
	Rank			**1**	**2**		
Vodafone	N	Valid	0	4	4	4	2
		Missing	4	0	0	0	2
	Mean			**1.25**	**1.75**	**3.00**	**4.00**
	Std. Deviation			.500	.500	.000	.000
	Rank			**1**	**2**	**3**	**4**
DoCoMo	N	Valid	4	4	0	0	0
		Missing	0	0	4	4	4
	Mean		**1.00**	**2.00**			
	Std. Deviation		.000	.000			
	Rank		**1**	**2**			

Statistics in Table 5.3.8 represents that for Airtel service provider, most sales is of FRC 101 and FRC 121 followed by FRC 151, whereas FRC 81 and 82 has least demand. In case of Idea results show that FRC 51 has highest demand followed by FRC 53 although FRC 31, 61

and 66 has least demand. For Vodafone results represents that FRC 52 has highest sale followed by FRC 53 and FRC 121 and 151 whereas FRC 20 has least demand. DoCoMo offers only two FRC between these FRC 67 has high demand followed by FRC 222.

Further the data collected from retailers is analysed. Results in Table 5.3.2 shows that for Airtel service provider, FRC 82 has highest demand followed by FRC 81 and FRC 101, whereas FRC 121 has least demand in the market. In case of Idea FRC 51 has highest demand followed by FRC 53. For Vodafone FRC 53 has high demand followed by FRC 52. In case of DoCoMo FRC 222 is highly demanded by customers followed by FRC 67.

To evaluate the relationship between factors that is company selection and prepaid plans. To validate the hypothesis that prepaid plans will leads to the choice of service provider by retailers and/or customers, correlation is carried out.

Table 5.3.3: Correlation of company selection and prepaid plans

Prepaid Plans		
Airtel	Company selection	.872
		.054
		5
Idea	Company selection	.886*
		.045
		5
Vodafone	Company selection	.881*
		.049
		5
Docomo	Company selection	.898*
		.039
		5

Note: Pearson correlation - *; Sig at 0.05 (2 tailed); N =5

From the Table 5.3.3, it can be seen that there is a high significant positive correlation between company selection and prepaid plans, for Idea, Vodafone and DoCoMo, coefficient being 0.886, 0.881 and 0.898 respectively significant at 0.05 level and .05 level. This shows that good prepaid plan will increase the choice level for the service provider.

For Airtel, there is a high positive correlation between company selection and prepaid plans correlation coefficient being 0.872, but insignificant at 0.05 level. It shows that even good prepaid plan offered by a company will not have high impact on company selection rather some other factors plays important role in selection of service provider.

In order to determine the strength of the relationship between one dependent variable which is usually denoted by Y and the independent variable which is changing, regression analysis is being used. Basically, the regression is of two types; linear regression and multiple regressions. This study uses linear regression where one independent variable used to explain and/or predict the dependent variable that denotes by Y. It is seen that in making choice for service provider, significant correlations exist between prepaid plans.

The general form of each type of regression is **Y = a + bX**

Where,

Y: Dependent variable,

X: independent variable used to predict Y,

a: is the intercept,

b: is the slope.

A positive correlation is found between company selection (dependent variable) and prepaid plans as independent variable (X_1). In order to measure the level of effect of independent factor on the dependent factor, for all four companies, regression analysis is carried out.

5.3.1 Impact of Prepaid plans on Company Selection

Good prepaid plans have an impact on company selection by customers and retailers. This is evident from the company wise correlation results which show that prepaid plans are significantly correlated with company selection. To test the hypothesis the regression analysis is done using distributor, franchises and retailers data. The Data received from distributors is analysed. As in case of Airtel service provider the results shows insignificant impact though it is showing high positive relationship with prepaid plans. Thus to further check the strength

of relationship Airtel service provider is omitted from the analysis, the results are shown as follows:

Table 5.3.4: Regression Statistics for Impact of Prepaid Plans on Company Selection

Model Summary					
Company	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Idea	1	.886[a]	.785	.713	1.56086
Vodafone	1	.881[a]	.775	.701	1.65989
Docomo	1	.898[a]	.806	.741	1.52706

From the Table 5.3.4, For Idea correlation coefficient (R) is found to be 0.886 whereas the "R square" is found to be 0.785 i.e. 78.5 percent of the variability can be brought in company selection with respect to independent variable prepaid plans, however in case of Vodafone "R" is 0.881 and "R square" is 0.775 that is 77.5 percent of its variability in selection of service provider. Whereas for DoCoMo coefficient of determination is 0.898, squared multiple correlation is found to be 0.806, that is 80.6 percent variance is explained by prepaid plans. Moreover for all three companies the "Adjusted R square" value of 0.713, 0.701 and 0.741 indicates the representation of the sample to the population. To get confirmed, whether the test is significant or not, the results of ANOVA is shown in Table 5.3.5.

Table 5.3.5: ANOVA statistics for level of prepaid plans on company selection

ANOVA							
Company	Model		Sum of Squares	Df	Mean Square	F	Sig.
Idea	1	Regression	26.691	1	26.691	10.956	.045[a]
		Residual	7.309	3	2.436		
		Total	34.000	4			
Vodafone	1	Regression	28.534	1	28.534	10.356	.049[a]
		Residual	8.266	3	2.755		
		Total	36.800	4			
Docomo	1	Regression	29.004	1	29.004	12.438	.039[a]
		Residual	6.996	3	2.332		
		Total	36.000	4			

For sampled companies ANOVA Table 5.3.5 indicates regression value. For Idea, Vodafone and DoCoMo the regression value is much higher than the residual value and significant at 0.05 level, thus prepaid plans of these company is sufficient enough to influence the choice of service provider. The next table is depicting the regression coefficients of the independent variables.

Table 5.3.6: Regression coefficient of prepaid plans vs. company selection

Coefficients[a]							
Company	Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			B	Std. Error	Beta		
Idea	1	(Constant)	1.809	6.440		.281	.797
		Prepaid Plans	.809	.244	.886	3.310	.045
Vodafone	1	(Constant)	1.979	4.972		.398	.717
		Prepaid Plans	.706	.219	.881	3.218	.049
Docomo	1	(Constant)	-.559	5.026		-.111	.918
		Prepaid Plans	.784	.222	.898	3.527	.039

It is inferred that in order to influence retailers and customer for choice of particular service provider the attention is to be concentrated on prepaid plans. As it can be seen from the result table that for all three service provider prepaid plans have impact on company selection as the significance value is lower than 0.05. This coefficient table provides different set of regression equation for predicting response variable.

To calculate the effect of prepaid plans on company selection, the model can be framed from the coefficient table for all the three service providers as follows:

- Idea : CS = 1.809 + 0.809 × PRP
- Vodafone : CS = 1.979 + 0.706× PRP
- DoCoMo : CS = 0.559 + 0.784× PRP

From the equation it is confirm that if the prepaid plans value will increase by one the selection of service provider will also increase by 0.809 in case of Idea, for Vodafone it will increase by 0.706 and for DoCoMo it will increase by 0.784.

Further to study the impact of prepaid plans on selection of service provider the data collected from franchises is analysed and results are as follows:

Table 5.3.7: Regression Statistics for Impact of Prepaid Plans on Company Selection

Model Summary					
Company	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Airtel	1	.952[a]	.907	.860	1.65479
Idea	1	.958[a]	.917	.876	.60945
Vodafone	1	.953[a]	.908	.861	.98518
Docomo	1	.963[a]	.928	.891	1.72401

From Table 5.3.7, the coefficient of determination "R square" is found to be high, for Airtel it is 0.907, Idea 0.917, Vodafone 0.908 and for DoCoMo it is 0.928. Thus for Airtel the predictor prepaid plans on selection of service provider explains 90.7 percent of its variance. In other words, the error variance of selection of service provider/company selection is approximately 10 percent itself. In case of Idea prepaid plans on the selection of service provider explains 91.7 percent of its variance. Whereas in case of Vodafone and DoCoMo, 90.8 and 92.8 percent of variance is explained by prepaid plans, therefore the error variance of service provider selection is approximately 10 and 07 percent.

Table 5.3.8: ANOVA statistics for level of prepaid plans on company selection

ANOVA							
company	Model		Sum of Squares	Df	Mean Square	F	Sig.
Airtel	1	Regression	53.273	1	53.273	19.455	.048[a]
		Residual	5.477	2	2.738		
		Total	58.750	3			
Idea	1	Regression	8.257	1	8.257	22.231	.042[a]
		Residual	.743	2	.371		
		Total	9.000	3			
Vodafone	1	Regression	19.059	1	19.059	19.636	.047[a]
		Residual	1.941	2	.971		
		Total	21.000	3			
Docomo	1	Regression	76.056	1	76.056	25.589	.037[a]
		Residual	5.944	2	2.972		
		Total	82.000	3			

The Table 5.3.8 of ANOVA is explaining significance values for all four service providers that is 0.048, 0.042, 0.047 and 0.37. the defined p value is 0.05 of the model. For Airtel with the regression value is 53.273 and F value 19.455 at 1, 2 degree of freedom (df) significance is .048 which is lesser than .05. In case of Idea regression value 8.257 and F value is 22.231 at 1,2 degree of freedom, significance is .042 which is lower than definite p value. For Vodafone regression value is 19.059 and F value is 19.636 at 1,2 degree of freedom, whereas for DoCoMo regression value is 76.056 and F value is 25.589 at 1, 2 degree of freedom. For service all four providers regression value is much higher than the residual value with the significance lesser than the definite p=0.05 significance level. This infer that means are significantly different from zero, in other words this establishes the fact that according to franchise's responses good prepaid plan is an important factor influencing customers in determining the choice of service provider.

Table 5.3.9: Regression coefficient of prepaid plans vs. company selection

Coefficients							
company	Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			B	Std. Error	Beta		
Airtel	1	(Constant)	-15.589	8.280		-1.883	.200
		Prepaid Plan	1.411	.320	.952	4.411	.048
Idea	1	(Constant)	4.143	2.849		1.454	.283
		Prepaid Plan	.486	.103	.958	4.715	.042
Vodafone	1	(Constant)	-7.441	5.875		-1.267	.333
		Prepaid Plan	1.059	.239	.953	4.431	.047
Docomo	1	(Constant)	-6.583	4.353		-1.512	.270
		Prepaid Plan	1.028	.203	.963	5.059	.037

From the coefficient table, fitted model to calculate the effect of prepaid plans on choice of service provider (CS) can be predicted as:

Airtel : CS = (-15.589) + 1.411 × PRP

Idea : CS = 4.143+ 0.486 × PRP

Vodafone : CS = (-7.441) + 1.059 × PRP

DoCoMo : CS = (-6.582) + 1.028 × PRP

This infers that good prepaid plans offered by service providers will increase the chance for service provider to be selected by the customers.

The data about all four companies is analysed in the retailers perspective is shown in Table 5.3.10.

Table 5.3.10: Regression Statistics for Impact of Prepaid Plans on Company Selection

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Airtel	.600[a]	.360	.349	1.45841
Idea	.691[a]	.478	.469	1.32948
Vodafone	.272[a]	.074	.058	1.66342
DoCoMo	.674[a]	.454	.445	2.20735

Results showing relationship between selection of service provider/company selection and prepaid plans is 0.600, 0.691, 0.272 and 0.674 for Airtel, Idea, Vodafone and DoCoMo respectively.

Table above is depicting R square value 0.360, 0.478, 0.074 and 0.454 infer that predictor prepaid plans is attributed to 36, 46.9, 5.8 and 44.5 percent of its variance on selection of service provider for Airtel, Idea, Vodafone and DoCoMo separately. Moreover the "Adjusted R square" value indicates the representation of the sample to the population. To get confirmed, whether the test is significant or not, the following ANOVA Table 5.3.11 is shown.

Table 5.3.11: ANOVA statistics for level of prepaid plans on company selection

ANOVA						
Model		Sum of Squares	Df	Mean Square	F	Sig.
Airtel	Regression	69.486	1	69.486	32.669	.000[a]
	Residual	123.364	58	2.127		
	Total	192.850	59			
Idea	Regression	93.817	1	93.817	53.078	.000[a]
	Residual	102.516	58	1.768		
	Total	196.333	59			
Vodafone	Regression	12.850	1	12.850	4.644	.035[a]
	Residual	160.484	58	2.767		
	Total	173.333	59			
DoCoMo	Regression	235.050	1	235.050	48.241	.000[a]
	Residual	282.600	58	4.872		
	Total	517.650	59			

F values for all four service providers is, Airtel 32.669 at 1, 58 degree of freedom, for Idea 53.078 at 1, 58 df, for Vodafone 4.664 at 1, 58 degree of freedom and for DoCoMo 48.241 at 1, 58 degree of freedom is significant at the .05 level of significance. Therefore the dependent variable is well defined by the independent variable at five percent level; consequently the whole model is weighty. The coefficient of independent variable against the dependent variable is mentioned below in the Table 5.3.12.

Table 5.3.12: Regression coefficient of prepaid plans vs. company selection

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
Airtel	(Constant)	8.149	2.858		2.851	.006
	Prepaid Plan	.710	.124	.600	5.716	.000
Idea	(Constant)	3.495	2.295		1.523	.133
	Prepaid Plan	.734	.101	.691	7.285	.000
Vodafone	(Constant)	15.088	2.906		5.192	.000
	Prepaid Plan	.283	.132	.272	2.155	.035
DoCoMo	(Constant)	-12.757	4.919		-2.593	.012
	Prepaid Plan	1.498	.216	.674	6.946	.000

The regression equation for the predictor prepaid plans will be different for all four service providers;

Airtel: SC = 8.149 + 0.710 × PRP

Idea: SC = 3.495 + 0.734 × PRP

Vodafone: SC = 15.088 + 0.283 × PRP

DoCoMo: SC = (-12.757) + 1.498 × PRP

From here it is confirm that if the company offers good plans the chances for selection of service providers will increase.

Table 5.3.13: Statistics of Post-paid Plans of all four Mobile Operators

Statistics							
Company			Post-paid Plan-1	Post-paid Plan-2	Post-paid Plan-3	Post-paid Plan-4	Post-paid Plan-5
Airtel	N	Valid	3	2	3	2	1
		Missing	1	2	1	2	3
	Mean		**1.33**	**1.50**	**2.00**	**2.50**	**3.00**
	Rank		**1**	**2**	**3**	**4**	**5**
Idea	N	Valid	0	4	4	4	0
		Missing	4	0	0	0	4
	Mean			**1.25**	**2.25**	**2.50**	
	Rank			**1**	**2**	**3**	
Vodafone	N	Valid	4	4	0	0	4
		Missing	0	0	4	4	0
	Mean		**1.50**	**2.50**			**2.00**
	Rank		**1**	**3**			**2**
DoCoMo	N	Valid	4	4	0	0	4
		Missing	0	0	4	4	0
	Mean		**1.00**	**2.00**			**3.00**
	Rank		**1**	**2**			**3**

To compare about postpaid plans of all four companies, which has high demand, means were compared and lowest mean given rank one.

For Airtel Postpaid Plans; PP-1, PP-2, PP-3, PP-4 and PP-5 are 199, 299, 399, 599, and family plan respectively. Statistics in table 6.30 represent that most sale is of plan199 followed by postpaid plan 299, postpaid plan 399 and 599, whereas family plan is new plan offered by a company and has got fifth rank. In case of Idea PP-1, PP-2, PP-3, PP-4 and PP-5 are 249,299,399,499 and 899 respectively. Results show that postpaid plan 249 has highest demand followed by postpaid plan 299, whereas postpaid plan 399 has got third rank and other postpaid plan are least demand. For Vodafone PP-1, PP-2, PP-3, PP-4, PP-5 are 666, 999, AP corp premium, AP 99 and AP super999 respectively. Results represent that postpaid plan 699 is in high demand by customers followed by postpaid plan 999 and AP super 999 has got third rank. Whereas other postpaid plans has least demand. In case of DoCoMo offers PP-1, PP-2, PP-3, PP-4, and PP-5 are Power199, Smart249, Desire999, Family999 and Unlimited Plan respectively where Power199 has high demand followed by Smart 249 whereas unlimited plan has ranked third by customers.

5.3.2 Effect of Post-paid

Table 5.3.14: Cross-tabulation of franchisee sales of Post-paid Plans for all four Mobile Operators

			Post-paid sale					Total
			less than 5	5-9	10-14	15-19	20 and above	
Company	Airtel	Count	0	3	1	0	0	4
		% within company	.0%	75.0%	25.0%	.0%	.0%	100.0%
	Idea	Count	0	2	1	0	1	4
		% within company	.0%	50.0%	25.0%	.0%	25.0%	100.0%
	Vodafone	Count	3	1	0	0	0	4
		% within company	75.0%	25.0%	.0%	.0%	.0%	100.0%
	DoCoMo	Count	1	0	0	3	0	4
Total		Count	4	6	2	3	1	16
		% within company	25.0%	37.5%	12.5%	18.8%	6.3%	100.0%
Chi-Square = 23.333			Df=12			Sig. =0.025		

Based on the responses gathered from franchises the sale of postpaid connection is evaluated. Results in the Table 5.3.14 shows that for Airtel out of 4 franchises, three franchises sale 5-9 postpaid connections. One franchise has sale of 10-14 postpaid connections per day. In case of Idea out of 4 franchises, two franchises sale 5-9 connections in a day, one franchise sale 10-14 connections whereas other one franchise sale 20 and above connections in a day. For Vodafone out of 4 franchises, 3 franchises sale less than 5 connections in a day and other 1 franchise sale 5-9 connections in a day. Incase of DoCoMo out of 4 franchises, one franchise sale less than 5 connections and three franchises sale 15-19 connections in a day. To evaluate the effect of company on postpaid sales chi-square test is carried out. Chi-square calculated value to this matrix is 23.333 at 12 degrees of freedom, p=0.025, which is lesser than definite 0.05 level of significance, which implies that the alternative hypothesis is accepted and it can be concluded that post-paid connection is associated with the selection of service provider/company.

5.3.3 Post-paid bills deposited

Table 5.3.15: Cross-tabulation of Post-paid Bill Deposits for all four Mobile Operators

			Post-paid bill deposits					Total
			less than 20	20-39	40-59	60-79	80-100	
Company	Airtel	Count	0	2	0	2	0	4
		% within company	.0%	50.0%	.0%	50.0%	.0%	100.0%
	Idea	Count	0	0	2	1	1	4
		% within company	.0%	.0%	50.0%	25.0%	25.0%	100.0%
	Vodafone	Count	4	0	0	0	0	4
		% within company	100.0%	.0%	.0%	.0%	.0%	100.0%
	DoCoMo	Count	3	0	0	0	1	4
		% within company	75.0%	.0%	.0%	.0%	25.0%	100.0%
Total		Count	7	2	2	3	2	16
		% within company	43.8%	12.5%	12.5%	18.8%	12.5%	100.0%

While analyzing about postpaid bill deposits by customers at franchises, results in the Table 5.3.15 shows that in case of Airtel out of 4 franchises, 2 franchises deposits 20-39 postpaid bills in a day and other 2 franchises deposits 60-79 bills in a day. For Idea results represent that out of 4 franchises 2 franchises deposits 40-59 bills and one franchise deposits 60-79 bills whereas other 1 franchise deposits 80-100 bills in a day. In case of Vodafone all 4 franchises deposit less than 20 bills in a day. For DoCoMo out of 4 franchises 3 franchises deposit less than 20 bills and one franchise deposit 80-100 bills in a day. These statistics shows that Airtel has high sale in postpaid services followed by Idea and Vodafone, however DoCoMo has lowest sale. `

5.3.4 Impact of Post-paid plans in selection of service provider

Customers in the present scenario are very conscious about plans. As the information about plans of all service providers is easily accessible which influence customers to seek

information and compare plans. Customers generally choose plan which give them maximum benefits. Therefore there is a need to evaluate the impact of postpaid plans in selection of service provider, the regression is carried out. Before checking for impact of independent factor, variables are been analysed for their relationship.

Results in the Table 5.3.16 and Table 5.3.17 show that there is a high positive significant relationship found between selection of service provider/company selection and postpaid plan. Coefficient is been 0.766, and separately for all four service providers coefficient is being 0.963, 0.953, 0.947 and 0.951 for Airtel, Idea, Vodafone and DoCoMo respectively.

Table 5.3.16: Regression Statistics for Impact of Postpaid Plans on Company Selection

Model Summary					
Company	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Airtel	1	.963[a]	.927	.890	1.46629
Idea	1	.953[a]	.907	.861	.64550
Vodafone	1	.947[a]	.897	.846	1.03848
DoCoMo	1	.951[a]	.904	.856	1.98459

In the case of Airtel, Idea, Vodafone and DoCoMo corresponding squared multiple correlations are 0.927, 0.907, 0.897 and 0.904 which implies that postpaid plans explains 92.7, 90.7, 89.7 and 90.4 percent of its variance in selection of service provider respectively.

The model is significant at the 0.05 level of significance. Therefore the dependent variable is well defined by the independent variable at 0.037, 0.047, 0.053 and 0.049 significance levels respectively; consequently the whole model is perfect fit. The regression values and F values of independent variables against the dependent variable are mentioned in Table 5.3.17.

Table 5.3.17: ANOVA statistics for level of post-paid plans on company selection

ANOVA[b]							
Company	Model		Sum of Squares	df	Mean Square	F	Sig.
Airtel	1	Regression	54.450	1	54.450	25.326	.037[a]
		Residual	4.300	2	2.150		
		Total	58.750	3			
Idea	1	Regression	8.167	1	8.167	19.600	.047[a]
		Residual	.833	2	.417		
		Total	9.000	3			
Vodafone	1	Regression	18.843	1	18.843	17.473	.053[a]
		Residual	2.157	2	1.078		
		Total	21.000	3			
DoCoMo	1	Regression	74.123	1	74.123	18.820	.049[a]
		Residual	7.877	2	3.939		
		Total	82.000	3			

The corresponding regression weight estimate for Airtel, Idea, Vodafone and DoCoMo is 3.300, 1.167, 1.216 and 1.140 with a standard error of about 0.656, 0.953, 0.947 and 0.951 respectively. For all the four service providers, i.e., Airtel, Idea, Vodafone and DoCoMo, the regression weight for postpaid plans in the prediction of selection of service provider is significantly different from zero at the 0.005 level.

The regression equation for the predictor postpaid plans will be different for all the four service providers:

Table 5.3.18: Regression coefficient of post-paid plans vs. company selection

Coefficients[a]							
company	Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
			B	Std. Error	Beta		
Airtel	1	(Constant)	-73.300	18.703		-3.919	.059
		Postpaid Plans	3.300	.656	.963	5.032	.037
Idea	1	(Constant)	49.000	7.122		6.880	.020
		Postpaid Plans	-1.167	.264	-.953	-4.427	.047
Vodafone	1	(Constant)	-11.588	7.217		-1.606	.250
		Postpaid Plans	1.216	.291	.947	4.180	.053
Docomo	1	(Constant)	-8.377	5.479		-1.529	.266
		Postpaid Plans	1.140	.263	.951	4.338	.049

- Airtel: CS = (-73.300) + 3.300 × PP
- Idea: CS = 49.000 + (-1.167) × PP
- Vodafone: CS = (-11.588) + 0.291 × PP
- DoCoMo: CS = (-8.377) + 1.140 × PP

From the results, it can be concluded that if the company offers good postpaid plans then the chances of selection of particular service provider will also increase.

5.4. Objective 4: To do a detailed comparison of Customer Care offered by various mobile operators

Before evaluating impact of customer care services on selection of service provider the degree of relationship between customer care services provided by service provider and selection of service provider is been analysed using the data collected from Distributors, franchises and retailers. Correlation is carried out.

Table 5.4.1: Correlation of company selection and Customer Care Services

Customer Care Services		
Airtel	Company Selection	.930*
		.022
		5
Idea	Company Selection	.917*
		.029
		5
Vodafone	Company Selection	.922*
		.026
		5
DoCoMo	Company Selection	.889*
		.044
		5

Note: Pearson correlation - *; Sig at 0.05 (2 tailed); N =5

From the above Table 5.4.1, it can be seen that there is a high significant positive correlation between selection of service provider/company selection and customer care services, for Airtel coefficient being 0.930, Idea coefficient being 0.917, Vodafone it is 0.922 and for DoCoMo coefficient being 0.889 significant at 95% level of significance. This high relationship shows that good customer services will increase the choice of service provider.

5.4.1 Impact of customer care services on selection of service provider

.

To evaluate the impact of customer care services in selection of service provider regression analysis is carried out using data collected from distributors. It is evident from the correlation that the factor is significantly correlated with company selection.

Table 5.4.2: Regression Statistics for Impact of Customer Care Services on Company Selection

Model Summary					
Company	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Airtel	1	.930[a]	.865	.821	.29957
Idea	1	.917[a]	.840	.787	.41297
Vodafone	1	.922[a]	.849	.799	1.57280
DoCoMo	1	.889[a]	.790	.720	.23680

It can be seen from the result Table 5.4.2 Model Summary that there is high positive correlation between company selection and customer care services which is .930, 0.917, 0.922 and 0.889 for Airtel, Idea, Vodafone and DoCoMo respectively. For Airtel independent variable is explaining only 86.5 percent variance in selection of service provider, for Idea R square is 84 percent, in case of Vodafone it is 84.9 and for DoCoMo it is 79 percent variance in company selection/selection of service provider. Adjusted R square value is close to R square value which is indicating that model is closely fit with responses of the population.

Table 5.4.3: ANOVA statistics for level of Customer Care Services on company selection

ANOVA							
Company	Model		Sum of Squares	df	Mean Square	F	Sig.
Airtel	1	Regression	1.731	1	1.731	19.286	.022[a]
		Residual	.269	3	.090		
		Total	2.000	4			
Idea	1	Regression	2.688	1	2.688	15.764	.029[a]
		Residual	.512	3	.171		
		Total	3.200	4			
Vodafone	1	Regression	41.779	1	41.779	16.889	.026[a]
		Residual	7.421	3	2.474		
		Total	49.200	4			
Docomo	1	Regression	.632	1	.632	11.267	.044[a]
		Residual	.168	3	.056		
		Total	.800	4			

To check the accuracy ANOVA table is shown the regression statistics is significant and well below than definite p value .05, which implies the test is accurate. The F value is 19.286, 15.764, 16.889 and 11.267 at 1, 3 degree of freedom for Airtel, Idea, Vodafone and DoCoMo respectively. And these values are significant at .05 level of significance which validates the whole model is fit.

Table 5.4.4: Regression coefficient of Customer Care Services vs. company selection

Coefficients							
Company	Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			B	Std. Error	Beta		
Airtel	1	(Constant)	14.288	1.988		7.187	.006
		Customer Care Services	.288	.066	.930	4.392	.022
Idea	1	(Constant)	9.512	3.251		2.925	.061
		Customer Care Services	.395	.100	.917	3.970	.029
Vodafone	1	(Constant)	-4.816	5.451		-.883	.442
		Customer Care Services	.829	.202	.922	4.110	.026
DoCoMo	1	(Constant)	12.037	.653		18.436	.000
		Customer Care Services	.121	.036	.889	3.357	.044

Model came out to calculate the effect level of customer care services on the selection of service provider from coefficient table for all four service providers with varied values that is;

Airtel : $CS = 14.288 + 0.288 \times CCS$

Idea : $CS = 9.512 + 0.395 \times CCS$

Vodafone : $CS = (-4.816) + 0.829 \times CCS$

DoCoMo : $CS = 12.037 + 0.121 \times CCS$

Assumption from the table is that because p value is less than .05 the fit model is significant and the customer care services provided by companies has significant impact in determining the choice of service provider/company, specifically good customer care services positively influence chance for service provider to be selected.

To further evaluate the impact of customer care service on selection of service provider the data collected from franchises is been analysed, results are shown in Table 5.4.5.

Table 5.4.5: Regression Statistics for Impact of Customer Care Services on Company Selection

Model Summary					
Company	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Airtel	1	.673[a]	.454	.180	4.00657
Idea	1	.953[a]	.907	.861	.64550
Vodafone	1	.488[a]	.238	-.143	2.82843
DoCoMo	1	.996[a]	.992	.989	.55825

It can be seen from the Table 5.4.5 that in case of Airtel and Vodafone the customer care services is explaining 45.4 and 23.8 percent variance in selection of service provider. Although in case of Idea and DoCoMo customer care service explain high variance that is 95.3 and 99.6 percent of its variance, Thus as per franchises of Idea and DoCoMo customer care services does have impact on selection of service provider to some extent.

Table 5.4.6: ANOVA statistics for level of Customer Care Services on company selection

ANOVA							
Company	Model		Sum of Squares	df	Mean Square	F	Sig.
Airtel	1	Regression	26.645	1	26.645	1.660	.327[a]
		Residual	32.105	2	16.053		
		Total	58.750	3			
Idea	1	Regression	8.167	1	8.167	19.600	.047[a]
		Residual	.833	2	.417		
		Total	9.000	3			
Vodafone	1	Regression	5.000	1	5.000	.625	.512[a]
		Residual	16.000	2	8.000		
		Total	21.000	3			
DoCoMo	1	Regression	81.377	1	81.377	261.121	.004[a]
		Residual	.623	2	.312		
		Total	82.000	3			

Table 5.4.7: Regression coefficient of Customer Care Services vs. company selection

Coefficients							
Company	Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			B	Std. Error	Beta		
Airtel	1	(Constant)	95.947	58.402		1.643	.242
		Customer Care Services	-2.368	1.838	-.673	-1.288	.327
Idea	1	(Constant)	49.000	7.122		6.880	.020
		Customer Care Services	-1.167	.264	-.953	-4.427	.047
Vodafone	1	(Constant)	3.500	19.026		.184	.871
		Customer Care Services	.500	.632	.488	.791	.512
DoCoMo	1	(Constant)	-2.918	1.143		-2.552	.125
		Customer Care Services	.747	.046	.996	16.159	.004

Results in the Table 5.4.7 shows that incase of Airtel and Vodafone the significance value is very high than the definite value p=0.05, this infer as per franchises the customer care services do not have impact in the selection of service provider. Whereas in case of Idea and DoCoMo the significance level is lesser than p=0.05 which represents that as per Idea and DoCoMo franchises customer care services do have impact on the selection of service providers.

Model came out to calculate the impact level of customer care services on the selection of service provider from coefficient table 6.26 for Idea and DoCoMo service providers with varied values that is;

Idea: $CS = 49.000 + (-1.167) \times CCS$

DoCoMo : $CS = -2.918 + 0.747 \times CCS$

Table 5.4.8: Regression Statistics for Impact of Customer Care Services on Company Selection

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Airtel	.547[a]	.299	.287	1.52635
Idea	.656[a]	.430	.420	1.38936
Vodafone	.128[a]	.016	.001	1.71451
DoCoMo	.409[a]	.167	.153	2.72622

Results of all the four companies are shown in Table 5.4.8. The independent variable i.e. customer care services in the case of Airtel, Idea and DoCoMo defines 28.7, 42 and 16.7 percent of the variability in the dependent variable. Whereas in the case of Vodafone, it defines only 1.6 percent of variability in selection of service provider which is lower than the other three service provider. Thus it can be concluded that as per retailers' perception to some extent customer care services also contribute in the selection of service provider though the variability is low.

Table 5.4.9: ANOVA statistics for level of Customer Care Services on company selection at Retailers Data

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
Airtel	Regression	57.725	1	57.725	24.777	.000[a]
	Residual	135.125	58	2.330		
	Total	192.850	59			
Idea	Regression	84.375	1	84.375	43.710	.000[a]
	Residual	111.958	58	1.930		
	Total	196.333	59			
Vodafone	Regression	2.840	1	2.840	.966	.330[a]
	Residual	170.493	58	2.940		
	Total	173.333	59			
DoCoMo	Regression	86.577	1	86.577	11.649	.001[a]
	Residual	431.073	58	7.432		
	Total	517.650	59			

The regression weight for Customer care services in the prediction of selection of service provider/company selection is significantly different from zero at the 0.001 level of significance. Similarly, for Airtel, Idea, Vodafone and DoCoMo residual value is much higher than regression value and F value is 24.777, 43.710, .966 and 11.649 at 1, 58 degree of freedom respectively and the probability value is less than the 0.001 level of significance. For Airtel, Idea and DoCoMo service provider the level of significance is 0.001, which is less than definite 'p-value (0.05)', but in case of Vodafone significance value is 0.330 which is much higher than definite p value. Thus, only in case of Airtel, Idea and DoCoMo the applied test is significant which establishes the fact that customer care services is also a contributing factor in influencing customers for determining the choice of service provider as this infer from table 5.4.10.

Table 5.4.10: Regression coefficient of Customer Care Services vs. company selection

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Airtel	(Constant)	14.966	1.916		7.813	.000
	Customer Care Services	.364	.073	.547	4.978	.000
Idea	(Constant)	7.979	1.852		4.308	.000
	Customer Care Services	.469	.071	.656	6.611	.000
Vodafone	(Constant)	18.933	2.452		7.722	.000
	Customer Care Services	.094	.095	.128	.983	.330
DoCoMo	(Constant)	7.655	4.028		1.900	.062
	Customer Care Services	.528	.155	.409	3.413	.001

To calculate the effect of customer care services on selection of service provider/company selection, the model can be framed from the coefficient table for Airtel, Idea and DoCoMo service providers are as follows:

- Airtel : $CS = 17.161 + 0.229 \times CC$
- Idea : $CS = 10.414 + 0.450 \times CC$
- DoCoMo : $CS = 11.530 + 0.388 \times CC$

This means that good followup with the customers using customer care services will increase the chances for selection of service provider.

For detailed evaluation of value added services provided by mobile operators the data is gathered from franchises, distributors and retailers. Further, firstly the data collected from franchises is analysed and results are shown in table below.

Table 5.4.11 Company Wise Cross-tabulation of Value Added Services

			Number of VAS					Total
			less than 5	5-9	10-14	15-19	20 and above	
Company	Airtel	Count	0	0	2	1	1	4
		% within company	.0%	.0%	50.0%	25.0%	25.0%	100.0 %
	Idea	Count	0	0	2	2	0	4
		% within company	.0%	.0%	50.0%	50.0%	.0%	100.0 %
	Vodafone	Count	3	0	1	0	0	4
		% within company	75.0%	.0%	25.0%	.0%	.0%	100.0 %
	DoCoMo	Count	0	2	0	1	1	4
		% within company	.0%	50.0%	.0%	25.0%	25.0%	100.0 %
Total		Count	3	2	5	4	2	16
		% within company	18.8%	12.5%	31.3%	25.0%	12.5%	100.0 %
Pearson Chi-Square = 21.200			df = 12			Sig. = 0.048		

Result in Table 5.4.11 shows that incase of Airtel, out of 4 franchises, 2franchises sale 10-14 value added services. one franchise sale 15-19 VAS and other one franchise sale 20 and more value added services in a day. For Idea out of 4 franchises, 2 franchises sale 10-14 VAS and other two franchises sale 15-19 value added services. For Vodafone out of 4 franchises 3 franchises sale less than 5 VAS per day and one franchise sale 5-9 value added services in a day. In case of DoCoMo out of 4 franchises, 2 franchises sale 5-9 value added services, one franchises sale 15-19 VAS and the other one franchise sale 20 and above VAS in a day. This infers that Airtel and Idea has most demand for its value added services, followed by DoCoMo. However Vodafone has least demand of its value added services. Chi-square calculated value to this matrix is 21.200 at 12 {(4-1) = 3, (5-1) = 4, 3×4=12} degrees of

freedom, p=0.048, which is lesser than definite p=0.05 level of significance, which implies that the alternate hypothesis is accepted and value added services has an effect on selection of service provider.

Literature reveals that value added service has an impact on selection of mobile operator. In order to determine the role of VAS in making a choice for a particular Service provider, the data gathered from distributors is analysed. The correlation results in the Table 5.4.12 shows that for all four service providers coefficient is being 0.881, 0.907, 0.937 and 0.919 which is evident of high positive correlation between value added service and selection of service provider. This relationship is ground to analyse the strength of relationship. Further to validate the hypothesis that VAS has impact on selection of service provider, for this regression analysis is carried out.

Table 5.4.12: Regression analysis for impact of VAS on selection of Mobile Operator

Model Summary					
Company	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Airtel	1	.881[a]	.776	.701	.38656
Idea	1	.907[a]	.823	.764	.43486
Vodafone	1	.937[a]	.878	.837	1.41421
DoCoMo	1	.919[a]	.844	.792	.20412

It can be seen from the result Table 5.4.12 that correlation is high between VAS and selection of mobile operator, R square values being 0.776 for Airtel, 0.823 for Idea, 0.878 for Vodafone and 0.844 for DoCoMo, and thus it explains 77.6, 82.3, 87.8 and 84.4 percent of variance in selection of mobile operator for Airtel, Idea, Vodafone and DoCoMo respectively. Adjusted R square value is close to R square value which indicates that the model closely fits the responses of the population.

Table 5.4.13: ANOVA statistics for level of VAS on company selection

ANOVA							
Company	Model		Sum of Squares	df	Mean Square	F	Sig.
Airtel	1	Regression	1.552	1	1.552	10.385	.048[a]
		Residual	.448	3	.149		
		Total	2.000	4			
Idea	1	Regression	2.633	1	2.633	13.922	.034[a]
		Residual	.567	3	.189		
		Total	3.200	4			
Vodafone	1	Regression	43.200	1	43.200	21.600	.019[a]
		Residual	6.000	3	2.000		
		Total	49.200	4			
DoCoMo	1	Regression	.675	1	.675	16.200	.028[a]
		Residual	.125	3	.042		
		Total	.800	4			

The regression values and F values of all four mobile operators for value added services in the prediction of selection of mobile operator/service provider/company selection is significantly different from zero at the 0.048, 0.034, 0.019 and 0.028 significance level which is well below the definite 'p-value (0.05) implying that the test is accurate.

Table 5.4.14: Distributors Regression coefficient of Value Added Services vs. company selection

Coefficients							
Company	Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
			B	Std. Error	Beta		
Airtel	1	(Constant)	20.397	.826		24.688	.000
		Value Added Services	.086	.027	.881	3.223	.048
Idea	1	(Constant)	11.798	2.848		4.143	.026
		Value Added Services	.356	.095	.907	3.731	.034
Vodafone	1	(Constant)	7.000	2.325		3.010	.057
		Value Added Services	.500	.108	.937	4.648	.019
DoCoMo	1	(Constant)	10.750	.862		12.471	.001
		Value Added Services	.188	.047	.919	4.025	.028

To calculate the effect of value added services on selecetion of mobile operator, the model can be framed from the coefficient table for all four service providers are as follows:

- Airtel : CS =20.397 + 0.086 × VAS
- Idea : CS = 11.798+ 0.356 × VAS
- Vodafone : CS = 7.000 + 0.500 × VAS
- DoCoMo : CS = 10.750 + 0.188 × VAS

It is inferred from Table 5.3.14 that the fit model is significant because p-value is less than 0.05 and value added service has a significant impact in determining the choice of mobile operator.

This is evident of fact from the previous results that the 'value added services' is significantly correlated with 'selection of service provider' and has significant impact on it. To validate the results of distributors data, the test is further carried out using data collected from franchises. And the results are shown in Table 5.4.15.

Table 5.4.15: Regression Statistics for Impact of VAS on Company Selection

Model Summary					
Company	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Airtel	1	.947[a]	.896	.844	1.74587
Idea	1	.962[a]	.926	.889	.57735
Vodafone	1	.961[a]	.924	.886	.89285
DoCoMo	1	.94	.900	.850	2.02790

From the Table 5.3.15 Model Summary it can be seen that for measuring strength of relation between selection of service provider/mobile operator/ company selection as a dependent factor and value added services as an independent factor, the value of R square for Airtel is 0.896 that is 89.6 percent of variance of selection of mobile operator is explained by value added services. In case of Idea the value of R square is 0.926 that is 92.6 percent of variance is explained by VAS in selection of service provider. For Vodafone R square value is 0.924 infer that 92.4 percent of its variance is explained by VAS. However for DoCoMo the value

of R square is 0.900 this indicates 90 percent variance of selection of mobile operator is explained by value added services.

Table 5.4.16: ANOVA statistics for level of VAS on selection of mobile operator

ANOVA							
Company	Model		Sum of Squares	Df	Mean Square	F	Sig.
Airtel	1	Regression	52.654	1	52.654	17.274	.053[a]
		Residual	6.096	2	3.048		
		Total	58.750	3			
Idea	1	Regression	8.333	1	8.333	25.000	.038[a]
		Residual	.667	2	.333		
		Total	9.000	3			
Vodafone	1	Regression	19.406	1	19.406	24.343	.039[a]
		Residual	1.594	2	.797		
		Total	21.000	3			
DoCoMo	1	Regression	73.775	1	73.775	17.940	.051[a]
		Residual	8.225	2	4.112		
		Total	82.000	3			

To get confirmed, whether the test is significant or not the following ANOVA Table 5.4.16 shows that, In case of Airtel F = 52.654 at 1, 2 degrees of freedom, with a probability .053 this is equal to p= 0.05. For Idea: F = 25.000 at 1, 2 degrees of freedom, with a probability .038 well below than 0.05. For Vodafone: F= 24.343 at 1,2 degree of freedom significance is 0.039 which is well below than definite p value. In case of DoCoMo F=17.940 at 1,2 df significance is 0.051 which is equal to definite p=0.05. So the regression is significant. From the table it can be seen that in all four companies 'value added service' value is significantly different from zero. Therefore, it can be concluded that VAS has significant impact on selection of service provider.

To calculate the effect of VAS on selection of mobile operator, the model can be framed from the coefficient table for all four service providers:

- Airtel : CS =9.365 + 0.712 × VAS
- Idea : CS = 12.083+ 0.417 × VAS
- Vodafone : CS = 5.758 + 0.468 × VAS
- DoCoMo : CS = 2.781 + 0.922 × VAS
-

Table 5.4. 17: Regression coefficient of VAS vs. selection of mobile operator

Coefficients							
Company	Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
			B	Std. Error	Beta		
Airtel	1	(Constant)	9.365	2.875		3.258	.083
		Value Added Services	.712	.171	.947	4.156	.053
Idea	1	(Constant)	12.083	1.121		10.778	.008
		Value Added Services	.417	.083	.962	5.000	.038
Vodafone	1	(Constant)	5.758	2.621		2.197	.159
		Value Added Services	.468	.095	.961	4.934	.039
DoCoMo	1	(Constant)	2.781	3.058		.909	.459
		Value Added Services	.922	.218	.949	4.236	.051

Table 5.4.18: Statistics showing value added services of mobile operators

Statistics					
		VAS Airtel	VAS Idea	VAS Vodafone	VAS DoCoMo
N	Valid	60	60	60	60
	Missing	0	0	0	0
Mean		**14.67**	**11.48**	**7.60**	**6.17**
Rank		**4**	**3**	**2**	**1**
Std. Deviation		9.344	7.509	6.277	6.054
Minimum		3	0	1	1
Maximum		50	35	30	30
Sum		880	689	456	370

As the resultant Table 5.4.17 represents that DoCoMo has high sale of value added services followed by Vodafone and Idea. However Airtel being market leader in Vishakhapatanam but has least demand for value added services. Table 5.4.18 represents that in case of Airtel out of 60 retailers, 26 retailers sale 14-15 'value added services' in a day, 19 retailers sale 20 and above VAS and 9 retailers sale 5-9 VAS in a day. Whereas 5 retailers sale 15-19 VAS and only 1 retailer sale less than 5 VAS in a Day. In case of Idea the sales is, about 21 retailers sale 10-14 value added services, 17 retailers sale 5-9 VAS and 11 retailers sale 20 and above value added services in a day. 7 retailers sales 15-19 VAS and four retailers sales less than 5 VAS in a day. For Vodafone

22 retailer sale 5-9 VAS, 16 retailers sale 10-14 VAS and other 16 retailers sale less than 5 value added services. 5 retailers sale 20 & above value added services and only one retailer sales 15-19 VAS in a day. In case of DoCoMo 25 retailer sale less than 5 value added services and 19 retailer sale 5-9 value added services. 12 retailers sale 10-14 value added services and 4 retailers sale 20 and above value added services in a day.

Table 5.4.19: Regression Statistics for Impact of value added services on Company Selection

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Airtel	.637[a]	.405	.395	1.40629
Idea	.576[a]	.332	.321	1.50347
Vodafone	.249[a]	.062	.046	1.67417
DoCoMo	.345[a]	.119	.104	2.80381

Comparison of all four mobile operators showing that the independent variable in case of Airtel, Idea and DoCoMo value added services are defining 39.5, 32.1 and 10.4 percent of its variability in the dependent variable that is selection of mobile operator. Whereas in the case of Vodafone, value added services is defining only 4.6 percent of variability in selection of service provider/mobile operator/company selection which is very low than the other three service providers. Thus it can be concluded that to the some extent value added services also plays key role in selection of telecom service provider. The dependent variable is well defined by the independent variable at five percent level. The coefficients of independent variable against the dependent variable are mentioned in the table below.

Table 5.4.20: ANOVA statistics for level of value added services on company selection

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
Airtel	Regression	78.146	1	78.146	39.514	.000[a]
	Residual	114.704	58	1.978		
	Total	192.850	59			
Idea	Regression	65.228	1	65.228	28.856	.000[a]
	Residual	131.105	58	2.260		
	Total	196.333	59			
Vodafone	Regression	10.769	1	10.769	3.842	.045[a]
	Residual	162.564	58	2.803		
	Total	173.333	59			
DoCoMo	Regression	61.690	1	61.690	7.847	.007[a]
	Residual	455.960	58	7.861		
	Total	517.650	59			

To get confirmed, whether the test is significant or not, Table 5.4.20, ANOVA table is shown. The F calculated value from the ANOVA table for all mobile operators is

Airtel: F = 39.514 at 1,58 degree of freedom, level of significance is .001.

Idea: F= 28.855 at 1, 58 degree of freedom level of significance is.001.

Vodafone : F= 3.842 at 1, 588 degree of freedom level of significance is .045, and for DoCoMo: F= 61.690 at 1, 58 degree of freedom level of significance is .007 which is less than definite p value (.05) thus applied test is significant, this established the fact that value added services also has impact in selecting mobile operator.

Table 5.4.21: Regression coefficient of prepaid plans vs. company selection

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
Airtel	(Constant)	7.848	2.647		2.965	.004
	Value Added Services	.603	.096	.637	6.286	.000
Idea	(Constant)	1.525	3.476		.439	.662
	Value Added Services	.695	.129	.576	5.372	.000
Vodafone	(Constant)	15.568	2.949		5.279	.000
	Value Added Services	.226	.115	.249	1.960	.045
DoCoMo	(Constant)	7.313	5.024		1.456	.151
	Value Added Services	.541	.193	.345	2.801	.007

From the coefficient table, regression equation to calculate the effect of VAS on selection of service provider can be predicted as:

Airtel : CS = 7.848 + 0.603 × VAS

Idea : CS = 1.525 + 0.695 × VAS

Vodafone : CS = 15.568 + 0.226 × VAS

DoCoMo:CS = 7.313 + 0.541 × VAS

5.5 Objective 5: To find the best Mobile Operator in Vishakhapatnam

An attempt was made to find out the best mobile operator in Vishakhapatnam. Respondents were requested rank their preferred choice of brand on 4 point ranking scale. A total of 60 respondents have given their preference in the form of ranks. Then ranks were analyzed by assigning them respective weightages by multiplying with number of responses. It was found that Airtel was given a score of 21, Idea was given a score of 28, Vodafone was given a score of 52 and DoCoMo was given a score of 47. Based on these score final ranks were assigned in ascending order of scores.

Table 5.5.1: Ranking of Mobile operators in Vishakhapatnam

Vishakhapatnam		Ranks								Total Weighted Score	Rank
		R1	Weighted Score	R2	Weighted Score	R3	Weighted Score	R4	Weighted Score		
Company	Airtel	10	10	4	8	1	3	0	0	21	1
	Idea	4	4	9	18	2	6	0	0	28	2
	Vodafone	1	1	1	2	3	9	10	40	52	4
	DoCoMo	0	0	2	4	9	27	4	16	47	3
Total		15		16		15		14		60	

Among all these TSPs, Airtel was chosen as the most preferred choice of mobile operator in Vishakhapatnam with a least score of 21, then Idea has been occupied the second rank by scoring next least score of 28. DoCoMo and Vodafone were placed in third and fourth position with the scores of 47 and 52 respectively.

5.6 Results of Hypotheses

Table 5.6: Results of Hypotheses

SN	Hypotheses	Results
Hypothesis 1	Higher retailer coverage results into higher sales for Telecom Service Providers (TSPs).	Accepted
Hypothesis 2	There is a significant difference in the sales of different service providers.	Accepted
Hypothesis 3	Prepaid plans have a significant effect on selection of Telecom Service Providers (TSPs).	Accepted
Hypothesis 4	Post-paid paid plans have significant effect on selection of Telecom Service Providers (TSPs).	Accepted
Hypothesis 5	Customer care services have significant effect on selection of Telecom Service Providers.	Accepted
Hypothesis 6	Value Added Services have significant effect on selection of Telecom Service Providers.	Accepted

5.3 Conclusions

This chapter deals with the analysis and interpretation of the objectives set for the study for Vishakhapatanam. The first objective is analysed in previous chapter based on exploratory study that is "To analyze the Network parameters of different operators in A.P. as it leads to call quality, call drops etc." the findings explains that in Call Clarity & Call drops Idea & Airtel are best in followed by Vodafone which hold third position in the market

Further this chapter dealt with other five objectives concerning the detailed study of prepaid and postpaid plans with the impact of prepaid plans, value added service and customer care services which on selection of service provider. To determine this effect ANOVA and regression analysis is carried out and result shows the positive influence of these factors on the selection of service provider. Value added services and focussed customer care services have significant impact on selection of service provider.

CHAPTER VI

CONCLUSIONS AND SUGGESTIONS

The Indian telecom sector grew immensely in recent past. Result of this very fast growth opened the doors for many Indian and foreign organizations which is leading to a very competitive environment in the telecom space. Today the mobile telecommunication industry is facing a vividly tougher competition in a new deregulated environment by offering low tariffs combined with an increased spectrum costs has led to high prospects of abolition of uncompetitive players from the market. Therefore in such an environment, it becomes necessary for every telecom operator to strategies for long term sustainability by analyzing customers preferences for selection of service providers.

The present study is augmented by three stages. At first stage the underlying purpose guiding this research is discussed. It is followed by the study on the factors influencing selection of service provider, detailed study of prepaid, postpaid, customer care, value added services and Distribution strengths also analysed the network parameters. At the third stage a concluding discussion comprising considerations and implications for further study is presented.

6.1 Findings of the study

Before analysing the study objectives, pilot study is conducted on 100 customers to find out the factors influencing selection of a particular telecom service operator. Based on data gathered it is concluded that factors influencing selection of service providers are discounts, value added services, customer care services, tariffs, network quality, celebrity endorsement availability and internet.

The first objective of the study was to analyse the Network parameters of different operators in A.P. as it leads to call quality, call drops etc. is analysed based on data collected from the managers of the all four service provider. Since the study for this objective was exploratory

and mainly based on the primary data thus special care has been taken to prepare unstructured interview. The information is collected in light of following points:

a) Mobile equipment capability
b) Base transceiver station
c) Cell and its capacity
d) Mobile switching centers and spectrum allocation
e) Spectrum Bands and their Characteristics
f) The Spectrum band used by Telecom operators and the number of Base Stations

The detailed study on all the above listed parameters is mentioned in the chapter-V. Based on the data gathered from interview of managers it can be concluded that in Hyderabad-Secunderabad city IDEA is best in terms of call drops and call clarity followed by Airtel & Vodafone. In case of Vishakhapatnam IDEA & AIRTEL are best followed by Vodafone is.

The second objective of the study was to do a detailed analysis of Distribution strengths (availability & reach) of different Mobile operators. This was considered an important factor considered by the consumers in selection of a service provider. This objective is analysed with the use of three sets of data that is distributors, franchises and retailers. From the responses gathered it is analyse on following points:

a) Prepaid connection sale per day
b) Effect of coverage on sale
c) Most preferred company
d) Per day sale of mobile operator

Based on the responses gathered on above mentioned points it can be concluded that all four service providers have different sale. In case of Hyderabad Airtel has maximum sale followed by Idea whereas in case of Vishakhapatnam Idea has maximum sale followed by DoCoMo. For both the cities Airtel is a preferred service provider followed by Idea.

The third objective of the study was to do a detailed comparison of Tariffs offered by different mobile operators. This objective is evaluated with the use of all three sets of data in light of following points:

a) Detailed comparison of FRC provided by the all four service providers
b) Effect of FRC on selection of service provider
c) Effect of prepaid plans on selection of service provider

Result shows that only in case of Vodafone FRC has effect on selection of service provider. Although prepaid plans have impact in selection of service provider.

In fulfilling of the fourth objective, which was to do a detailed comparison of Customer Care offered by various mobile operators. This objective is examined by analysing impact of customer care services provided by service provider on selection of service providers. The results depicts correlation between selection of service provider and customer care services and has positive impact.

.

In pursuit of the fifth objective i.e. to do a detailed comparison & evaluation of Post-paid services offered by mobile operators, this objective is analysed on following points:

a) Comparison of postpaid plans of all four service providers,
b) Prepaid bill deposits in a day
c) Impact of postpaid plans on selection of service provider

Result shows that postpaid plans have positive impact on the selection of service provider

The last objective of this research study was to do a detailed evaluation of Value Added Services offered by Mobile operators. This objective is fulfilled by analysing per day sale of value added services, effect of value added service on selection of service provider and finally it shows high correlation with selection of service provider with positive impact. Results reveal that value added services has effect on service provider.

6.2 Conclusions

In order to fulfill the research purpose, hypotheses was framed. After testing the hypotheses, answers to the questions are provided, by considering the conclusions of the study exploration, procedure and the analysis.

6.2.1 Factors influencing selection of service provider

The study aims at suggesting a set of parameters to customers to help them in making right choice of mobile operator and then use these parameters to suggest best mobile operator in Andhra Pradesh. In India customers have many options of service providers to choose one among them. Results based on the perception of the100 customers revealed the key influencing factors of selection of service providers are Network quality which was ranked first, Tariff concerned with call rates was ranked second. It is followed by availability and Discounts. The factor Value Added Services was ranked fifth is, which precise the fact that Indian consumers search for value for money to make a choice of service provider.

Results stated that collectively as well as for all four companies separately, network quality is ranked first by the customers followed by tariffs. This result was base to the further analyses of the network parameter of all four companies.

The factors such as Internet and Celebrity Endorsement were observed having positive influence on selection of service provider have got least rank. This shows that customers do consider these factors for assessment and selection of service provider but give least importance to these two factors in making choice their choices. Although companies are using these two factors as a weapon to compete with the competitors for creating brand image in the market and creating new customers.

Researches in the telecommunication sector stated positive influence of these above mentioned factors for creating satisfaction and loyalty in customer's mind as well as creating new customers. The result of the study is in line with studies done on customer satisfaction, loyalty and preferences patron.

6.2.2 Network Parameters of all four Service Providers

Based on the data collected from manager's interview, analysis results indicate that in case of Hyderabad-Secunderabad city Airtel service provider operates at spectrum band 900 MHz and/or 1800 MHz and having 4025 base stations. The ratio of operation on these frequencies is 60 percent and 40 percent respectively. Vodafone and DoCoMo operate at spectrum band 1800 MHz and having 4989 and 1800 base stations respectively. Whereas Idea operates at spectrum band 900 MHz and having 4028 base stations. In case of Vishakhapatnam city Airtel service provider is operation on spectrum band 900 MHz and/or 1800 MHz and having 2280 base station. The ratio of operation on these frequencies is 85 percent and 15 percent respectively. Idea operates at spectrum band 900 MHz having 2280 base stations. Vodafone and DoCoMo operate at 1800 MHz, and having 2435 and 2444 base stations.

As it is discussed in chapter five that 900 Mhz band has a superior commercial ecosystem than 1800 Mhz. That's because 900 Mhz frequency band has been in use for mobile communications globally for over 20 years and as a result technology standards have been better developed compared with 1800 Mhz band, which has been in use only recently. The base station controls multiple BTSs (Base Transceiver Station). It controls the handovers from one BTS to other BTS within its range and also helps in administration of frequency, signal & power measurements etc. It acts as a Funnel to Mobile Switching Center (MSC). Multiples BScs are handled by a MSC which also handles the handovers between 2 BSCs.

Thus it can be concluded that for Hyderabad-Secunderabad city in terms of call clarity and call drops Idea is a best service provider due to its maximum base stations and frequency operation followed by Airtel. Vodafone is on third position whereas for Vishakhapatnam city in terms of call clarity and call drops IDEA & AIRTEL are best due to same number of base station and operation at same frequency followed by Vodafone holding third position.

6.3 Management Perspective

Based on data gathered from interviews of manager's information about strength of all four service providers compiled and summarized in table 6.1 and 6.2.

Table 6.1 Data about strength of all four service providers for Hyderabad-Secunderabad

S.No.	Particulars	Airtel	Idea	Vodafone	DoCoMo
1	Number of Distributors	16	20	18	15
2	SUK Selling Retailers	7000	6200	5300	4100
3	Recharge Retailers	11900	10100	9300	8900
4	Customer Care Centres	8	5	3	3
4	No. of Franchises	24	19	16	11
5	Monthly SUK sales	105000	82000	60000	56000
6	Monthly Recharge Sale	52cr	33cr	29cr	16cr
7	Existing customer Base	41lacs	22lac	13lac	10.4lac

Source: compiled by author

From the table 7.1 it can be concluded that Airtel is leading service provider having maximum number of franchises and SUK selling retailers with monthly recharge sale is of 52Cr. Followed by Idea having monthly recharge sale is of 33Cr. Whereas Vodafone and DoCoMo is having third and fourth rank with 29Cr and 16Cr respectively.

Table 6.2: Data about strength of all four service providers for Vishakhapatnam

Sno.	Perticulars	Airtel	Idea	Vodafone	DoCoMo
1	Number of Distributors	5	8	9	7
2	SUK Selling Retailers	1600	1450	980	810
3	Recharge Retailers	3100	2900	2200	1800
4	Customer Care Centers	3	2	2	1
4	No. of Franchises	8	8	5	1
5	Monthly SUK sales	20000	22000	8000	8000
6	Monthly Recharge Sale	7Cr	5.8 Cr	3 Cr	2 Cr
7	Existing customer Base	6.1lac	3.7lac	1.9lac	1.3lac

Source: compiled by author

Table 6.2 depicted that in Vishakhapatnam Airtel is leading service provider having monthly recharge sale is of 7Cr. Idea is on second position having monthly recharge sale is of 5.8Cr followed by Vodafone having monthly recharge sale is of 3Cr. DoCoMo is holding forth position with monthly recharge sale is of 2Cr.

6.3.1 Distribution Strength of Mobile Operators

Findings pointed out that all four operators having different sale of prepaid connections in the market. Among all four operators Airtel is having more coverage of retailers followed by Idea and Vodafone this conclusion on analysis is akin with the results compiled on data received after interview of managers of all four service providers.

As hypothesized that higher the retailer's coverage of the service provider, the higher their prepaid connections sale will be. However in assessing the effect of coverage on sale, based on the results it can be concluded that increased in coverage will increase the sale of the prepaid connections. But it is also observed that effect of retailer's coverage beyond the

maximum level of coverage of retailers by distributors does not associate with prepaid connection sale, it stagnates down. In case of Vishakhapatnam it can be concluded that prepaid sale is associated with the retailer's coverage by service provider.

The findings also pointed out that Airtel is most preferred service provider and has higher sales followed by Idea, DoCoMo and lastly Vodafone. Thus it can be ascertained that the sale and the preference is brand depended hence the availability and reach of the brand in the market increases its sales and popularity. This also validated by the data compiled and summarized in table 6.1 and 6.2.

6.3.2 Tariffs offered

Based on the analysis done on three sets of data it can be concluded that as per perception distributors and retailers of Hyderabad-Secunderabad, in case of Airtel service provider most sale is of FRC 81 followed by FRC 101. In case of Idea FRC 51 has highest demand followed by FRC 53. For Vodafone FRC 52 has highest sale followed by FRC 53 and for DoCoMo FRC 67 has high demand. Franchises perception is also similar with distributors the only difference is that in case of Vodafone the highest demanded FRC is 53. While in perception of distributors and retailers of Vishakhapatnam, in case of Airtel most demanded FRC is of FRC 82 followed by FRC 121. In case of Idea FRC 51 has highest demand followed by FRC 53. For Vodafone as per distributors FRC 52 has highest sale followed by FRC 53 whereas as per retailers FRC53 has highest demand followed by FRC52. DoCoMo has high demand of FRC 222. For Vishakhapatnam franchises perception varies from distributors and retailers according to them Airtel service provider has most sales is of FRC 101 and FRC 121. In case of Idea FRC 51 has highest demand followed by FRC 53. For Vodafone FRC 52 has highest sale followed by FRC 53. DoCoMo has high demand of FRC 67.

Researching the effect of FRC on selection of service provider for Hyderabad-Secunderabad the result concluded that in case of Airtel, Idea and DoCoMo the FRC does not effect in selection of service provider but in case of Vodafone FRC shows effect on selection of service provider. Although for Vishakhapatnam FRC has no effect on selection of service provider. Variables shows high correlation while analyzing the impact of prepaid plans offers

on selection of service providers for both the cities. Results concluded that for Hyderabad-Secunderabad as per distributor's perception except Airtel service provider prepaid plans have positive impact on selection of service providers. On the other hand franchises and retailers perception conclude that prepaid plans does have influence on selection of service providers. However for Vishakhapatnam prepaid plans offered by service providers do have positive impact in selection of service provider.

6.3.3 Customer Care services

Customer care services shows high correlation with the selection of service providers and have a positive impact on selection of service provider for all four mobile operators. As hypothesized that customer care services have positive impact on selection of service provider this was tested on three sets of data. Results concluded that for Hyderabad-Secunderabad as per distributors and retailers perception customer care services have moderate variability in selection of service provider and has positive impact thus will increase the chance of selecting service provider. But as per franchises perception it can be concluded that customer care services does not have impact on selection of service provider.

For Vishakhapatnam as per distributors perception customer care services has positive impact on selection of service provider but as per franchises perception customer care service have positive impact only in case of Idea and DoCoMo whereas for Airtel and Vodafone it does not show impact. Although as per retailers perception customer care services has low variability in selection of service provider but shows positive impact on selection of service providers in case of Airtel, Idea and DoCoMo whereas in case of Vodafone customer care does not have any impact in selection of service provider. Conceptual rationale for the present finding is that good customer care service has positive impact but if customer care does not respond in time and many reminders or call for tariffs and services irritate customers which can lead to change to service provider whereas timely respond and solution to the problem arises by customer care will increase chance to be selected. The findings of the study allow us to probe for further research in terms of why customer care services have differential impact for different service providers and whether the nature of the impact varies across different situations and time.

6.3.4 Postpaid offers

Post-paid offer is an important factor influencing the selection of service provider. For Hyderabad-Secunderabad, results conclude about post-paid plans of all four service providers. In case of Airtel highest demand is of plan199 followed by post-paid plan 299. In case of Idea post-paid plan 249 has highest demand followed by post-paid plan 299. For Vodafone post-paid plan AP super999 has highest sale followed by plan 666. DoCoMo has high demand of Desire 999 followed by plan Power 199. For Vishakhapatnam Airtel and Idea has similar demand whereas demand for Vodafone and DoCoMo postpaid plan varies. That is for Vodafone postpaid plan 699 is in high demand by customers followed by postpaid plan 999. In case of DoCoMo Power199 has high demand followed by Smart 249 whereas unlimited plan has ranked third by customers.

While evaluating the effect of company on postpaid sales for Hyderabad-Secunderabad and Vishakhapatnam, findings pointed out that the postpaid connection sale depends on the service provider/company. Analysing postpaid bill deposits for both the cities results concluded that Airtel has high sale in postpaid services followed by Idea and Vodafone, however DoCoMo has lowest sale. However researching the impact of postpaid plan offers in selecting service provider results concluded that there is a high correlation exist between the variables and postpaid plans have positive impact on selection of service provider.

6.3.5 Value Added Services

Value added service is another important factor influencing the selection of service provider. The effect of value added service is analysed for Hyderabad-Secunderabad and Vishakhapatnam, from the results it can be concluded that value added services has an effect on selection of service provider.

On the detailed analysis of sales of value added services results established the fact that DoCoMo has high sale of value added services followed by Vodafone and Idea. However Airtel being market leader has least demand for value added services. As hypothesized that higher the value added services the higher will be the chances of service provider to be selected. Analysing for both the cities variables shows high correlation. As per distributors and franchises perception value added service have positive impact on selection

of service provider with high variability explained by VAS on service provider's selection. But as per retailer's perception it shows low variability and positive impact.

Competition in cellular mobile market in India is increasing day by day thus service providers are trying to build and maintain competitive advantages in the market. According to the result of the study, service providers must try their best to achieve higher market share by offering best offers and services. The results of the study can be summarized as follows:

Table 6.3 Summarised by denoting Ranks to all four service providers for Hyderabad-Secunderabad

		Service providers			
S.No.	Particulars	Rank1	Rank2	Rank3	Rank4
1	Network Coverage	Idea	Airtel	Vodafone	DoCoMo
2	Retail Coverage	Airtel	Idea	Vodafone	DoCoMo
3	Prepaid sale	Airtel	Idea	DoCoMo	Vodafone
4	Postpaid sale	Airtel	Idea	DoCoMo and Vodafone	-
5	Preferred Company	Airtel	Idea	DoCoMo	Vodafone
6	Customer Care Services	Idea	DoCoMo	Airtel	Vodafone
7	Value added services	Idea	Vodafone	Airtel	DoCoMo

Table 6.4 Summarized by denoting Ranks to all four service providers for Vishakhapatnam

		Service providers			
S.No.	Particulars	Rank1	Rank2	Rank3	Rank4
1	Network Coverage	Idea and Airtel	Vodafone	DoCoMo	--
2	Retail Coverage	Airtel	Idea	Vodafone	DoCoMo
3	Prepaid sale	Airtel	Idea	Vodafone	DoCoMo
4	Postpaid sale	Idea	Airtel	DoCoMo	Vodafone
6	Preferred company	Airtel	Idea	Vodafone	DoCoMo
7	Customer Care Services	Idea	Airtel	DoCoMo	Vodafone
8	Value added services	Airtel	Idea	DoCoMo	Vodafone

6.4 Suggestions

This research offers new and significant insights in the area of mobile operator's selection and underlines the prerequisite for continual research to examine the generalizability of the study findings. The results of the present study also enhance the understanding of the impact of predictors (prepaid plans, postpaid plans, value added services, customer care services and distribution strength) on selection of service provider. Therefore, the findings of this study can be suggestive for service provider rather than a definite solution so that managers can be benefited by implementing the suggestions.

As with the new entrants of service provider into the market, the market become more competitive in this situation service providers not only formulate various strategies to test the market but also try to build loyalty by offering services by building image. This will also increase the chances of attracting non users and can be converted loyal customers.

There should be transparency in tariffs, prepaid, and postpaid plans which help to avoid confusions and restrict the switching from one operator to other. Service providers should offer lifetime plans with reduce the call rates. This will help in retention and creation of new customer which ultimately increase the market share. Service providers should also provide other facilities like massage and minimum call rates in the same network and avoid hidden charges. Best schemes will help in retaining and attracting more customers. In same lines service providers should also provide some call, massage and data benefits to their retailers which will motivate them to increase users.

Because of cut-thought competition in the Indian telecom market, service providers should find ways to focus on developing new services that will help them to stand out from the competition and will also help to build up its customer relationships. Service providers should always offer toppings to be on the top when competition in the market is intensifying. They should design attractive offers and discounts for the customers that will increase chances to attract business partners and customers. Moreover, service providers convince that services, discounts and tariff offered are better and others are less effective.

Good network coverage will help to provide competitive benefit to the service providers. Service providers should not compromise with the quality and the network facility. Service providers should provide sufficient geographic coverage, call clarity and avoid call drops. Service provider should not only focus on better services but also ensure performance of their network.

Service providers should maintain good customer care services by providing proper training to the staff to behave politely, convey trust and ensure about prompt service to the business partners and consumers. Customer care staff should respond as quickly as possible in a promised time to the consumer's complaint. Premium service experience build loyal customers but when service provider fails to provide better services it dissuades business partners and customers to search for other better option. To protect themselves service providers should design error free service and ample support to their business partners and customers. Telecom service providers are also suggested to provide services politely and convey trust among customers.

Service provider should customize tariffs, prepaid and postpaid plans as per the need of the market this will help service provider to increase sale and creating image in the customer centric market. Similarly they should also analyse market needs to offer best suitable services to everyone. This will help in building image of attentive service providers working for convenience. Ultimately resulting in friendly and comfortable relationship, which makes the customer more attached. Service providers should develop rewards programs for business partners and customer to motivate them.

Finally, the insights of the study are based on perceptual measures provided by respondents such as distributor, franchise and retailers, who were contacted. Further same research can be carried out by using experimental techniques to get additional insights about which factors influence the selection of service provider.

6.5 Other Suggestions

- Retailers promote brands which gives them more and more margin.
- In case of Idea customers' demands are more for data which is expensive compared to other brands so company should provide additional benefit in data.
- In case of Airtel my family plan is exceptionally well plan and company should focus more on it.
- Customer care executives should be more courteous, responsive and up to date about the products.
- Companies should increase distributors' benefits, should provide additional benefits,
- Value added services are mainly data pack, they should provide value packs, loyalty with the company matters.
- In Airtel my plan is one of the best plan, one touch is getting hike, more data packs are used than voice
- Retailers should increase manpower for handling customers in smart way.
- Companies should improve signal strengths in rural and remote area
- Company should provide free calls and data to retailers which were their earlier in practice by Airtel service provider.
- Airtel pulse rate is high compare to other brands, this should be low which can increase activation.
- Company should use policy to activate only after use of FRC then only sim should activate, because retailers using fraud activation just for Rs. 10-20,
- Companies should improve network coverage.

- ❖ Companies should customize plans as per customer's requirements, like more data and low call rates
- ❖ improve activation in time
- ❖ Retailer should get good margin and benefits by company.
- ❖ Airtel should improve their customer care services.
- ❖ Vodafone should improve network coverage.

6.6 Managerial Implications

- ➢ Need to educate customers on Network issues and build trust by being transparent. Customers gained by huge promotions but weaker network will not stay for long and this will be hugely detrimental to the concerned TSP by way of negative word of mouth

- ➢ Need to make investments in Network by installing base stations for adequate coverage. The investment in promotions and celebrity endorsements should start only ensuring basic network infrastructure.

- ➢ Need for availability in all areas having significant population so that no customer has to travel more than a km to get recharge.
  - o Quite a few TSPs focus hugely on ensuring availability in mobile hubs/zones overlooking the fact the over- availability in mobile zones will not lead to Sale increase (one Finding of our research).

- ➢ One bad experience at the customer care centre leads to manifold decline in brand value but still it is one of the most neglected aspect of the business for TSPs. Need to invest in smaller formats of Care centres so that their reach increases

- ➢ Value Added Services are the engine for future growth for Telecom and the TSPs need to invest in consumer studies on what are the most desirable VAS & their price points.

- Customers should be given flexibility to choose between data & voice plans. Sharing should be possible also

- Advanced analytics: multiple cases of escalation of 'call drop issues', going on for months. TSPs must be in a position to assess the health of their networks, measure the quantum of call drops and address them accordingly.

6.7 Scope for Future Research

This study does not cover areas such as:

- Further studies can be carried out for comparing other service providers also and a comparative study can be done for capering public and private sector service providers. .
- Similar study can also be carried out to validate the results for time based study.
- Further research can explore and examine the impact of more than one independent variables on dependent variable using multiple regression.
- Comparative study can be carried out using other variables such as internet and celebrity endorsement for their impact in selecting service provider.
- Study can be extended in terms of geographical boundaries by adding other states or cities.

BIBLIOGRAPHY

1. Kothari, C. R. (2004). *Research methodology: Methods and techniques*. New Age International.

2. Creswell, J.W. (2003). Research Design: qualitative, quantitative and mixed methods approaches. Thousand Oaks: Sage Publications.

3. Daymon C., & Holloway, I. (2002). Qualitative Research Methods in Public Relations & Marketing Communications. London, UK: Routledge

4. De Vaus, D. A. 2001. *Research design in social research*. London: SAGE

5. Eisenhard (1989), K.M. Agency theory: an assessment and review. Academy of Management Review, Vol. 14, No. 1, 1989, pp 57-74.

6. Hair, J. F., Babin, B., Money, A. H., & Samouel, P. (2003). *Essentials of Business Research Methods* (International ed.). Hoboken, New Jersey: Wiley.

7. Hague, Hague & Morgan (2004). Market Research in Practice. London, United Kingdom: Kogan Page.

8. Krejicie, Robert V., Morgan, Daryle W., "Determining Sample Size for Research Activities", Educational and Psychological Measurement, 1970

9. Malhotra N. K., & Birks D. F. (2000). *Marketing Research: An Applied Approach. (European ed.)*. Harlow: Pearson Education

10. Maylor. H. & Blackmo, K. (2005). Researching Business and Management, Basingstoke Palgrave Macmillan.

11. McCutcheon, D. M., & Meredith, J. R. (1993). Conducting case study research in operations management. *Journal of Operations Management*, *11*(3), 239-256.

12. Myers, M.D. (2009), Qualitative Research in Business and Management, Sage Publications Ltd: London.

13. Newman, I., & Benz, C., (1998). Qualitative –Quantitative Research Methodology: exploring the Interactive Continuum, Pearson. (Groenewald, 2004)

14. Saunders, M., Lewis, P. & Thornhill, A. (2000). Research Methods for Business Students. (2nd ed). Harlow, UK: Pearson Education Limited.

15. Saunders, M., Lewis, P., & Thornhill, A. (2003). *Research methods for business students.* England:Prentice Hall.

16. Saunders, M., Lewis, P. and Thornhill, A. (2007). *Research Methods for Business Students(4th edition).* Harlow, UK: Prentice Hall.

17. Sekaran U. (2003). *Research methods for business: A skill building Approach (4th ed.)* .New York,

18. USA: Wiley. Kumar, R. (1999). Research Methodology. London, UK: Sage Publications LTD.

19. Wacker (1998)

20. Wiedeirsheim-Paul, F. & Eriksson, L.T. (1989). *To Investigate and Report*, (Unknown Publisher)

21. Yin, K. R. (2003). *Case study research: Design and methods (3rd ed.)*. California, USA

22. Yin, R. K. (Eds.). (1994). *Case study research: Design and methods.* Thousand Oaks, IL,

23. Zikmund W. G. (2000). Business Research methods, (6th ed). Fort Worth, Texas, USA: Dryden

References

1. Abraham Karimpanal, (2003). The Mobile Customer Retaining customer loyalty in mobile telephony, [online], available on : < http://economictimes.indiatimes.com/the-mobile-customer-retaining-customer-loyalty-in-mobile-telephony/articleshow/40164559.cms> , [Accessed on 25/09/2011]

2. Agarwal Pradeep, (1999). Comparison of customer satisfaction level of RIN) and Reliance Telecom Customer's, Unpublished major project Report, PIMR. lndtwe.

3. Ahasanul Haque, Sabbir Rahman, Mahbubur Rahman(2010). Factors Determinants the Choice of Mobile Service Provider, *Business and Economics Research Journal*, Vol 1 (3), pp 17-34

4. Amjad Iqbal, Mubashar Hassan Zia and others, (2011). Antecedents and Outcomes of Customer Satisfaction in using Prepaid Cellular Service in Pakistan ,[online], available on : http://www.wbiconpro.com/ Marketing/503-Iqbal,A%20&%20Others.pdf , [Accessed on 08/06/2015]

5. Amulya. M & Prof. D. Anand (2012). Demographic Trends in Indian Telecom sector – A study from the perspective of Customers of Select Telecom service providers in Mysore City. *Indian Journal of Research*, 1(12), 148-151.

6. Anita Seth Kiran Momaya and H.M. Gupta, (2005). An Exploratory Investigation of Customer Loyalty and Retention in Cellular Mobile Communication**,** *Journal of Services Research,* Special Issue, (December, 2005), pp 173-185

7. Annual Report Department of Telecommunications 2011.

8. Annual Report Telecom Regulatory Authority of India 2009-10.

9. Bamhoom C. (2006), Customer satisfaction increases in the Telecommunications industry. *Synorate Research Rinested*.

10. Birke and Swann (2005), Network effects and the choice of mobile phone operator

11. Daniel Birke, Peter Swann, Published online: 17 November 2005; © Springer-Verlag 2005

12. Cellular Operators Association of India (COAI) Report year 2011.

13. Chintan Shah, (2012). Consumer Preferences for Mobile Service Providers: An Empirical Study in Bardoli, *International Journal of Marketing and Technology*, Vol 2 (8), pp 268-288.

14. Communications Today, Article dated November 26, 2012.

15. Debrun Chakraborty, (2013). Customer Satisfaction and Expectation Towards Aircel: A Research conducted in West Midnapore , Abinav , International Monthly Refereed *Journal of Research In Management & Technology* , Abhinav Volume II, Jan-13 ,Page No 114-127.

16. Dinesh Kamath, (2011). A critical evaluation of customer satisfaction of cellular phone services in Pune, Submitted for PhD degree to the Symbiosis International University, Pune, [online], available on : http:// shodhganga.inflibnet.ac.in/handle/10603/8516 [Accessed on 10 /04/2015].

17. Dinesh Kumar Pandiya, Dr. Brajesh kumar, Mazahidul Haque Choudhury (2014), A Study of Customer satisfaction on Telecom Service Providers, *Indian journal of research*, Volume : 3 | Issue : 5 , 57-60)

18. Eshghi et al. (2008) Abdolreza Eshghi et al. (2007), "Determinants of Customer Loyalty in the Wireless Telecommunications Industry", *Telecommunications Policy*, 31, pp. 93-106.

19. G. N. Satish Kumar, (2011) Factors Influence Mobile Users In Selecting Cellular Service Providers in India : An Empirical Study Based On Structured Equation Model, *International Journal of Research in Commerce and Management* , Volume No2, 2011, Issue 6 (June)

20. Gerpott, T. J., Rams, W., & Schindler, A. (2001). Customer retention, loyalty, and satisfaction in the German mobile cellular telecommunications market. *Telecommunications policy*, *25*(4), 249-269.

21. Girish Taneja and Neeraj Kaushik (2007). customer perception towards mobile service providers; An analytical overview, *The IUP Journal of services marketing*, pp.14.

22. Gupta Aparajita, (2015). Spectrum demystified: Going into the 'hertz' of the matter**,** IANS, New Delhi

23. Henkel and Honchaime (2002),"The impact of emerging WLANS an Incumbent cellular service Providers in the US,

24. Economic Times, Article Dated November 15, 2012.

25. Economic Times, Article dated November 26, 2012.

26. Hiren J. Patel, Jigar Makwana and Shailesh Desai, (2011). An Empirical study on Factors Considered by Potential Users of 3G Mobile Services, Marketing Mastermind, Vol. XI, Page No. 42-55.

27. Jean Lam, Susy S. Chan, Xiaowen Fang and Jacek Brzezinski, (2004). Proposed Research Model for Customization and Satisfaction with Mobile Commerce, [online], available on : <facweb.cs.depaul.edu/research /techreports/tr04-009.doc>, [Accessed on 18/06/2015]

28. Jain, R. (1997). Operationalizing a Regulatory Framework in India. *Vikalpa*, *22*, 29-38.

29. Josee Bloemer,Ko de Ruyter and Martin Wetzels, (1998). Customer Loyalty in a Service Setting, *European Advances in Consumer Research,* Volume 3, pp 162-169

30. Kalavani (2006), "To study the gap between service promised and service offered by service provider".

31. Karen G. Strouse © 2004 ARTECH HOUSE, INC. Customer-Centered Telecommunications services marketing

32. Khan, Aisha; and Chaturvedi, Ruchi. (2006), "Promotional Strategies of Mobile Phone Service Providers in India", *ICFAI Journal of Management Case Studies*, Vol. VI, No. 2, February.

33. Kiseol Yang , Laura D. Jolly (2006), value-added mobile data services: the antecedent effects of consumer value on using mobile data services, *International Journal of Mobile Marketing,* VOL. 1 (2)

34. Krishnan and Kothari (2008)

35. Kushan Mitra (2005), Business Today, 5 June 2005.

36. L.Santhana Raj and A. Anandaraj, (2014). Consumer Preference and Satisfaction Towards Mobile Phone Service in Pondicherry Town, *Ge-International Journal of Management Research,* Vol 2 (9), pp 1-10.

37. Lim. H, and Widdows (2006), “M — Loyalty: sinnìng stratcgics for mobile carriers”, journal of consumer marketing. 23 4), pp: 208- 218

38. M.Muthuswami, Dr. Thangavel and Dr. Y.L.chaudhari (2007) ,Consumer Preference on Mobile Connections and buyer behavior Towards Relaince Mobile in Chennai City , Journal of Contemporary Research in Management, July-December-2007,Page No.89-101

39. Makam S. Balaji, (2009). Customer Satisfaction with Indian Mobile Services, The IUP Journal of Management Research, Vol. VIII, Pp 52 – 62

40. Malhotra Gunjan, Mukherjee Amitava, Nandi Abhishek and Sinharay Soumyadeep (2011) , Consumer Behaviour towards Mobile Phone Service Provider- An Empirical Research on Mobile Number Portability in India , Advances in Management , Issue-June 2011 , Page No. 44-47

41. Malik Fawad Nazir, Ghulam Mubashar Hassan, Imran Ghafoor Chaudhry, Sheraz Ali Khan and Kha-waja M Yahya (2007)

42. Marine Souheil and Blanchard Jean-Marie (2005), “Bridging the Digital Divide” e-Business

43. Molapo, M. Elizabeth., & Mukwada Geoffrey, (2014). Does Customer Retention Strategies Matter in the South African Cellphone Industry?, *Mediterranean Journal of Social Sciences, 5*(23), 144-151.

44. Melody .W.H. (1994). The information society; implications for economic institutions and market theory, *In E Comer (ed) , The global political economy of communication,* pp.21-36.

45. Miettila, A. and Moller, K. (1990). Interaction perspective into professional business services: a conceptual analysis, paper presented at the *Research Development on International Industrial Marketing and Purchasing, Milan*

46. Mukherjee Arindham, (2006). “Mobile service providers-perspective and practice”, *ICFAI University press*.

47. Muhammad Mohsin Butt & Ernest Cyril de Run, (2009). Modeling customer satisfaction in cellular phone services , *Journal Kemanusiaan bil,* 13, Issue -2009, [online], available on : <

http://www.fppsm.utm.my/download /doc_view/24-modeling-customer-satisfaction-in-cellular-phone-services.htm> [Accessed on 08/06/2015]

48. N.P. Singh and R.K. Gupta, "Use of Data Mining Tools", Effective Executive, Nov. 2004, pg. 59-67.

49. National Telecom Policy 1999

50. National Telecom Policy (NTP) of India (2012), No. 2-8/2012, Policy-I, Government of India, Ministry of Communication & IT, Department of Telecommunications, New Delhi, dated 13/06/2012

51. Ofir Turel and Alexander Serenko (2006). Satisfaction with mobile services in Canada: An empirical investigation , Telecommunications Policy 30, 314–331 [online] available on : < ww.sciencedirect.com>,

52. Pingali Venugopal (2008) "Sales and Distribution Management: An Indian Perspective"

53. Piotr Rzepakowski (2008), Supporting telecommunication product sales by conjoint analysis, *Journal of Telecommunication and Information Technology*, Issue No. 3, [online] , available on : http://dlibra.itl.waw.pl /dlibra-webapp/Content/197/JTIT-2008_3_28.pdf [accessed on 12 Jan 2012

54. Power (2009) J.D.Power and associate reports; Exceptional service satisfaction enhances dealer and manufacturer profibility through improved customer retention,"

55. Prasanna Kumar.M.G and Dr. Y M Raju 2014, Customer Satisfaction of Mobile Users: An Empirical Study http://isindexing.com/isi/papers/1413017756.pdf

56. Rajkumar Paulrajan and Harish Rajkumar, (2011). Service Quality & Customers Preference of Cellular Mobile Service Providers , Journal of Technology Management & Innovation , Volume 6 (1) pp. 38-45 , [online], available on : <http://www.scielo.cl/pdf/jotmi/v6n1/art04.pdf > [Accessed on 27/ 02/ 2015]

57. Rajpurohit. R. C. S. and Vasita. M.C (2011), consumer preferences and satisfaction towards Various mobile phone service providers: An Exploratory Study in Jodhpur City, Rajasthan, *Gurukul Business Review*, Vol 7, pp 1 — 1 1

58. Rakesh Kumar Sharma & R.K. Yadav, (2007). Reforms in Indian Telecom Sector, [online], available on : http://www.indianmba.com/Faculty Column /FC701/fc701.html [Accessed on 08/06/2015]

59. Rengarajan, M. (2000). Telecom Industry–A Survey of International Trends.

60. Sourabh P Chowdhuri and Shilpa K. Bendale (2013), When Mumbai Shifts Loyalties (A Scenario Of Mumbai Telecom Market) , Spectrum: A Journal of Multidisciplinary Research Vol.2 Issue 2, February 2013, Pp 36-45 , [online] , available on : http://www.pinnaclejournals.com /setup/socialscience/paper48.pdf, [Accessed on 6 May 2013

61. S. K. Chadha and Deepa Kapoor (2009), Effect of Switching Cost, service Quality and Customer Satisfaction on Customer Loyalty of Cellular Service Providers in Indian Market, The *ICFAI University Journal of Marketing Management*, Vol VIII, Page 24-29

62. S. S. Agarwal, (2009). Brand Ambassadors And Their Impact On Consumer Behaviour: A case Study Of Mobile Companies In India , Indian Journal of Marketing, December 2009 issue, Page No 3-8

63. Sabbir Rahman, Ahasanul Haque and Mohd Ismail Sayyed Ahmad, (2011). Choice Criteria for Mobile Telecom Operator: Empirical Investigation among Malaysian Customers, *Communications of the IBIMA*, Vol. 3, Page No.18-24 ,

64. Saxena, S.D. (1997). Financing of Indian Telecom in a Competitive Environment, *Vikalpa*, 22(3), 65-69

65. Sandhya Joshi, Parveen Khurana and Shashi Khurana, (2010). Service Quality in Telecom Sector – A study of Telecom Service Providers of Chandigarh, Panchkula and Moholi, *International Journal of Management Marketing research,* Vol.1 (1) Page No. 90 -98

66. Seema Gupta, Tejas Dave, Maria Cheryl Fernandez, Akhil Gupta, Pulkit Jain and T Srirathivarman (2009), Telecom Industry Pricing : Who is Eating into whose share, [online], available on : http://tejas.iimb.ac.in/articles/62.php [Accessed on 08/06/ 2015]

67. Shahzad Khan and Saima Afsheen, (2012). Determinants of Customer Satisfaction in Telecom Industry A Study of Telecom industry Peshawar KPK Pakistan ,Journal of Basic and Applied Scientific Research, Vol. 2 (12), pp 12833-12840

68. Shanthi N. M. (2005), "Indian Telecom: Growth and Transition", *Business Today*, January 2

69. Shikha Oja (2009), "Customer awareness of VAS of telecom sector of India", The ICFAI University, Journal of Infrastructure,pp;1-14.

70. Sulekha Munshi, (2011). Expectations And Perceptions Of Mobile Phone Users , *International Journal of Asian Social Science*, 1(1), pp.10-16.

71. Shymal Ghosh (2003), "The Resurging Telecom Sector", *pib.nic.in*, April.

72. T.V.Ramchandran (2005), Director-Genaral, Cellular operators association of india, Trends and Development, may-15, 2005.

73. Telecom Sector in India-Report (2015), Corporate Catalyst (India) Pvt. Ltd. New Delhi

74. Thomas K. Thomas (2012), Why 900 Mhz band is superior than 1800 Mhz band. Business Line, The Hindu, Dated October 18, 2012

75. Vaibhav Misra and DR. R.K shukla (2011). The study of relationship between reasons of churn outs in telecom sector in rural markets of lucknow district, *Indian Journal of Research*, Vol. **5**, pp 35-40

76. Vikas Gautam and Mukund Kumar (2011). An Empirical Investigation of Factors Determining the Consumers' Choice of Mobile Service Providers, *İşletme Araştırmaları Dergisi*, Vol. 3 (4), pp 3-17

77. Vipan Bansal and Bindu Bansal (2013), A Study on Customer Satisfaction of Mobile Phone Service Users Operating in the Malwa Region of the Punjab, *ABAC Journal*, Vol. 33 No. *3, pp.30-40*

78. Virat Bahri (2006), "The Database Revolution," Target Marketing, May, pp. 14-18.

79. Walters (2003) Stephen M. Watters, The New Telephony – Technology, Convergence, Industry Collision, Prentice Hall PTR, NJ07458.

80. Working Report on the Telecom Sector for the 12th Plan (2012-2017)

81. Yi Hao, Xiaoqin Yuan and Weiqing Zhang (2009) , How to promote Loyalty Of Chinese Mobile operator, [online], available on : www.bth.se/fou/cuppsats.nsf/0/3dae4fb1399cd1e8c125765f0044a7c5> [Accessed on 08/06/2015]

82. Zainurin Bin Dahari, Muhammad Sabbir Rahman and S.M. Ferdous Azam (2011), Customer Satisfaction with Mobile Phone Operators: An Exploratory study In Kuala Lumpur, Malaysia, Indian Journal of Marketing, Issue May 2011, Page No 39-46

Company Information-Source:

1. www.airtel.in
2. www.airtel.com
3. www.bharti.com
4. Bharti Airtel; case 1-428-834 Published by GlobaLens, a division of the William Davidson Institute at the University of Michigan. revised January 3, 2013
5. Bharti Airtel Ltd., Quarterly report on the results for the fourth quarter and year ended March 31, 2015
6. Bharti Airtel Financial Statement 2014
7. Bharti Airtel Limited, Annual Report 2013-14
8. Stock Idea – Bharti Airtel Ltd.(2011), Bajaj Capital Centre for Investment Research, Vol 6, pp 11-12
9. Idea Cellular limited, Quarterly Report – Fourth Quarter Ended March 31, 2015
10. Tata Teleservices Limited, Company Profile dated 14/01/2010, Retrieved on May 31, 2015
11. Tata DOCOMO, Annual Report, 2015.
12. www.tatacommunications.com
13. Tata Communications, Annual Report, 2014
14. www.ideacellular.com
15. Idea Cellular Limited, Annual Report: Staying focused delivering performance, 2014
16. Idea Cellular Limited, Quarterly Report – Third Quarter Ended December 31, 2013.
17. www.vodafone.in
18. Vodafone India Full Year FY13 Results, News Release Delhi, May 21, 2013
19. Vodafone Group Plc Factsheet, © Vodafone Group 2015
20. Vodafone Group Plc, Annual Report 2014: Empowering everybody to be confidently connected

Sandeep
Research Scholar

School of Management Studies
University of Hyderabad

Questionnaire for Customers

This questionnaire is prepared for helping customers to choose best mobile operator. The data collected will be used purely for academic purpose and will be kept confidential.

Please answer the following questions; your cooperation will be appreciated.

	Airtel	Idea	Vodafone	DoCoMo
Which company's plan do you keep				

1	Name	
2	Gender	Male ☐ Female ☐
3	Age	Below 25 ☐ 25– 34 years ☐ 35– 44 years ☐ 45– 54 year ☐ 55– 64 years ☐ over 65 ☐
4	Education	Less than high school ☐ Completed high school ☐ Completed Intermediate ☐ Graduate ☐ Postgraduate ☐

5. What factor influenced you most to choose service provider? In case of more than one factor please rank the factors (in sequence of most to least) influenced your choice.

1. Discount	2. Value Added Services
3. Customer Care	4. Tariff
5. Network Quality	6. Celebrity Endorsement
7. Availability	8. Internet

Thank You

Sandeep
Research Scholar

School of Management Studies
University of Hyderabad

Questionnaire for Distributor

This questionnaire is prepared for helping customers to choose best mobile operator. The data collected will be used purely for academic purpose and will be kept confidential.

Please answer the following questions; your cooperation will be appreciated.

	Airtel	Idea	Vodafone	Docomo
Which company's plan do you keep				

1	Name	
2	Gender	Male ☐ Female ☐
3	Age	Below 25 ☐ 25– 34 years ☐ 35– 44 years ☐ 45– 54 year ☐ 55– 64 years ☐ over 65 ☐
4	Education	Less than high school ☐ Completed high school ☐ Completed Intermediate ☐ Graduate ☐ Postgraduate ☐

5. Which plan of Prepaid connection is demanded by Retailers? (In case of more than one, Please specify in what rank the plans are in choice.)

1.	2.
3.	4.
5.	6.

Main Plans:
Airtel: FRC – 81, 82, 101, 121, 151, 197, 201, 275
Vodafone: FRC – 20, 52, 53, 121, 151, 199
Idea: FRC - 31, 51, 53, 66, 61
Docomo: FRC67, FRC222

6. Please provide information given below

SN	Particulars	
1	How many Pre-paid connections you sale in a day	
2	How many retailers you cover	
3	Your turnover per month	

7. Please give your level of satisfaction for the statements given below, from strongly disagree to strongly agree:

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Plans/Company selection						
1	Choice of company by retailers is due to company's promotion	1	2	3	4	5
2	Choice of company by retailers is due to customer demand	1	2	3	4	5
3	Retailers chose particular company due to service quality	1	2	3	4	5
4	Retailers chose particular company due to easy availability	1	2	3	4	5
6	Retailers chose particular company due to extra benefits provided by company	1	2	3	4	5

8. Please give your level of satisfaction for the statements given below, from strongly disagree to strongly agree:

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Pre-Paid Plans						
1	Retailers/Customers change plans as per your suggestions	1	2	3	4	5
2	Retailers/Customers have their own choice for plan	1	2	3	4	5
3	You promote plan because of commission provided by company	1	2	3	4	5
4	You offered to retailers/customers based on availability of the product	1	2	3	4	5
5	You offered to retailers/customers based on promotions of the company	1	2	3	4	5
6	You offered to retailers/customers based on some extra services or benefits given by the company	1	2	3	4	5
Value Added Services						
1	Retailers/Customers change VAS as per retailers suggestions	1	2	3	4	5
2	Retailers/Customers have their own choice for VAS	1	2	3	4	5
3	You promote VAS because of commission provided by company	1	2	3	4	5
4	You offered to retailers/customers based on availability of the service	1	2	3	4	5
5	You offered to retailers/customers based on promotions of the company	1	2	3	4	5
6	You offered to retailers/customers based on some extra services or benefits given by the company	1	2	3	4	5
7	Company has best VAS in comparison to competitors	1	2	3	4	5
Customer care Services						
1	Customers care center are responsible	1	2	3	4	5
2	Customers care executives are very supportive	1	2	3	4	5

3	Customers care executives follow-up until problem solved	1	2	3	4	5
4	Connection to customers care executives is fast	1	2	3	4	5
5	Customer care executives update you with new plans and services	1	2	3	4	5
6	Customers are benefited by company's customer care services	1	2	3	4	5
7	Company has best Customer Care Services in comparison to competitors	1	2	3	4	5

9. Please give us your suggestions for

Retailers

Company

Customers

Thank You

Sandeep
Research Scholar

School of Management Studies
University of Hyderabad

Questionnaire for Retailers

This questionnaire is prepared for helping customers to choose best mobile operator. The data collected will be used purely for academic purpose and will be kept confidential.

Please answer the following questions; your cooperation will be appreciated.

1	Name of the store	
2	Address of the store	
3	Phone number of the store	
4	Retailer's Name	
5	Gender	Male ☐ Female ☐
6	Age	Below 25 ☐ 25– 34 years ☐ 35– 44 years ☐ 45– 54 year ☐ 55– 64 years ☐ over 65 ☐
7	Education	Less than high school ☐ Completed high school ☐ Completed Intermediate ☐ Graduate ☐ Postgraduate ☐

	Airtel	Idea	Vodafone	Docomo
Which company's plan do you keep				
Which is most preferred company (in case of more than one, please specify ranking)				
Which operator has good plans (in case of more than one, please specify ranking)				
Which operator has good promotions (in case of more than one, please specify ranking)				
Which operator provides extra benefits to retailers on keeping their schemes (in case of more than one, please specify ranking)				
Which Operator has more sale				

8. Please provide information given below

SN	Particulars	Airtel	Idea	Vodafone	Docomo
1	How many Pre-paid connections you sale in a day				
3	How many top-ups/recharge you do in a day				
4	How many value added services in a day you give to customers				

9. Which plan of Prepaid connection is demanded by customers? (In case of more than one, Please specify in what rank the plans are in choice.)

1.	2.
3.	4.
5.	6.
Main Plans: **Airtel**: FRC – 81, 82, 101, 121, 151, 197, 201, 275 **Vodafone**: FRC – 20, 52, 53, 121, 151, 199 **Idea**: FRC - 31, 51, 53, 66, 61 **Docomo**: FRC67, FRC222	

Sales per month: …….

For Airtel

10. Please give your level of satisfaction for the statements given below, from strongly disagree to strongly agree:

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Plans/Company selection						
1	Customers chose particular company due to company's promotion	1	2	3	4	5
2	Customers chose particular company due to network connectivity and quality	1	2	3	4	5
3	Customers chose particular company due to service quality	1	2	3	4	5
4	Customers chose particular company due to easy availability	1	2	3	4	5
5	Customers chose particular company due to better tariffs	1	2	3	4	5
6	Customers chose particular company due to extra benefits provided by company	1	2	3	4	5

11. Please give your level of satisfaction for the statements given below, from strongly disagree to strongly agree:

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Pre-Paid Plans						
1	Customers change plans as per your suggestions	1	2	3	4	5
2	Customers have their own choice for plan	1	2	3	4	5
3	You promote plan because of commission provided by company	1	2	3	4	5
4	You offered to customers based on availability of the product	1	2	3	4	5
5	You offered to customers based on promotions of the company	1	2	3	4	5
6	You offered to customers based on some extra services or benefits given by the company	1	2	3	4	5
Value Added Services						
1	Customers change VAS as per your suggestions	1	2	3	4	5
2	Customers have their own choice for VAS	1	2	3	4	5
3	You promote VAS because of commission provided by company	1	2	3	4	5
4	You offered to customers based on availability of the VAS	1	2	3	4	5
5	You offered to customers based on promotions of the company	1	2	3	4	5
6	You offered to customers based on some extra services or benefits given by the company	1	2	3	4	5
7	Company has best VAS in comparison to competitors	1	2	3	4	5
Customer care Services						
1	Customers care center are responsible	1	2	3	4	5

2	Customers care executives are very supportive	1	2	3	4	5
3	Customers care executives follow-up until problem solved	1	2	3	4	5
4	Connection to customers care executives is fast	1	2	3	4	5
5	Customer care executives update you with new plans and services	1	2	3	4	5
6	Customers are benefited by company's customer care services	1	2	3	4	5
7	Company has best Customer Care Services in comparison to competitors	1	2	3	4	5

12. Please give us your suggestions for

Retailers

Company

Customers

Thank You

For Idea

10. Please give your level of satisfaction for the statements given below, from strongly disagree to strongly agree:

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Plans/Company selection						
1	Customers chose particular company due to company's promotion	1	2	3	4	5
2	Customers chose particular company due to network connectivity and quality	1	2	3	4	5
3	Customers chose particular company due to service quality	1	2	3	4	5
4	Customers chose particular company due to easy availability	1	2	3	4	5
5	Customers chose particular company due to better tariffs	1	2	3	4	5
6	Customers chose particular company due to extra benefits provided by company	1	2	3	4	5

11. Please give your level of satisfaction for the statements given below, from strongly disagree to strongly agree:

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Pre-Paid Plans						
1	Customers change plans as per your suggestions	1	2	3	4	5
2	Customers have their own choice for plan	1	2	3	4	5
3	You promote plan because of commission provided by company	1	2	3	4	5
4	You offered to customers based on availability of the product	1	2	3	4	5
5	You offered to customers based on promotions of the company	1	2	3	4	5
6	You offered to customers based on some extra services or benefits given by the company	1	2	3	4	5
Value Added Services						
1	Customers change VAS as per your suggestions	1	2	3	4	5
2	Customers have their own choice for VAS	1	2	3	4	5
3	You promote VAS because of commission provided by company	1	2	3	4	5
4	You offered to customers based on availability of the VAS	1	2	3	4	5
5	You offered to customers based on promotions of the company	1	2	3	4	5
6	You offered to customers based on some extra services or benefits given by the company	1	2	3	4	5
7	Company has best VAS in comparison to competitors	1	2	3	4	5
Customer care Services						
1	Customers care center are responsible	1	2	3	4	5
2	Customers care executives are very supportive	1	2	3	4	5
3	Customers care executives follow-up until problem solved	1	2	3	4	5

4	Connection to customers care executives is fast	1	2	3	4	5
5	Customer care executives update you with new plans and services	1	2	3	4	5
6	Customers are benefited by company's customer care services	1	2	3	4	5
7	Company has best Customer Care Services in comparison to competitors	1	2	3	4	5

12. Please give us your suggestions for

Retailers

Company

Customers

Thank You

For Vodafone

10. Please give your level of satisfaction for the statements given below, from strongly disagree to strongly agree:

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Plans/Company selection						
1	Customers chose particular company due to company's promotion	1	2	3	4	5
2	Customers chose particular company due to network connectivity and quality	1	2	3	4	5
3	Customers chose particular company due to service quality	1	2	3	4	5
4	Customers chose particular company due to easy availability	1	2	3	4	5
5	Customers chose particular company due to better tariffs	1	2	3	4	5
6	Customers chose particular company due to extra benefits provided by company	1	2	3	4	5

11. Please give your level of satisfaction for the statements given below, from strongly disagree to strongly agree:

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Pre-Paid Plans						
1	Customers change plans as per your suggestions	1	2	3	4	5
2	Customers have their own choice for plan	1	2	3	4	5
3	You promote plan because of commission provided by company	1	2	3	4	5
4	You offered to customers based on availability of the product	1	2	3	4	5
5	You offered to customers based on promotions of the company	1	2	3	4	5
6	You offered to customers based on some extra services or benefits given by the company	1	2	3	4	5
Value Added Services						
1	Customers change VAS as per your suggestions	1	2	3	4	5
2	Customers have their own choice for VAS	1	2	3	4	5
3	You promote VAS because of commission provided by company	1	2	3	4	5
4	You offered to customers based on availability of the VAS	1	2	3	4	5
5	You offered to customers based on promotions of the company	1	2	3	4	5
6	You offered to customers based on some extra services or benefits given by the company	1	2	3	4	5
7	Company has best VAS in comparison to competitors	1	2	3	4	5
Customer care Services						
1	Customers care center are responsible	1	2	3	4	5
2	Customers care executives are very supportive	1	2	3	4	5
3	Customers care executives follow-up until problem solved	1	2	3	4	5

4	Connection to customers care executives is fast	1	2	3	4	5
5	Customer care executives update you with new plans and services	1	2	3	4	5
6	Customers are benefited by company's customer care services	1	2	3	4	5
7	Company has best Customer Care Services in comparison to competitors	1	2	3	4	5

12. Please give us your suggestions for

Retailers

Company

Customers

Thank You

For Tata DoCoMo

10. Please give your level of satisfaction for the statements given below, from strongly disagree to strongly agree:

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Plans/Company selection						
1	Customers chose particular company due to company's promotion	1	2	3	4	5
2	Customers chose particular company due to network connectivity and quality	1	2	3	4	5
3	Customers chose particular company due to service quality	1	2	3	4	5
4	Customers chose particular company due to easy availability	1	2	3	4	5
5	Customers chose particular company due to better tariffs	1	2	3	4	5
6	Customers chose particular company due to extra benefits provided by company	1	2	3	4	5

11. Please give your level of satisfaction for the statements given below, from strongly disagree to strongly agree:

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Pre-Paid Plans						
1	Customers change plans as per your suggestions	1	2	3	4	5
2	Customers have their own choice for plan	1	2	3	4	5
3	You promote plan because of commission provided by company	1	2	3	4	5
4	You offered to customers based on availability of the product	1	2	3	4	5
5	You offered to customers based on promotions of the company	1	2	3	4	5
6	You offered to customers based on some extra services or benefits given by the company	1	2	3	4	5
Value Added Services						
1	Customers change VAS as per your suggestions	1	2	3	4	5
2	Customers have their own choice for VAS	1	2	3	4	5
3	You promote VAS because of commission provided by company	1	2	3	4	5
4	You offered to customers based on availability of the VAS	1	2	3	4	5
5	You offered to customers based on promotions of the company	1	2	3	4	5
6	You offered to customers based on some extra services or benefits given by the company	1	2	3	4	5
7	Company has best VAS in comparison to competitors	1	2	3	4	5
Customer care Services						
1	Customers care center are responsible	1	2	3	4	5
2	Customers care executives are very supportive	1	2	3	4	5
3	Customers care executives follow-up until problem solved	1	2	3	4	5

4	Connection to customers care executives is fast	1	2	3	4	5
5	Customer care executives update you with new plans and services	1	2	3	4	5
6	Customers are benefited by company's customer care services	1	2	3	4	5
7	Company has best Customer Care Services in comparison to competitors	1	2	3	4	5

12. Please give us your suggestions for

Retailers

Company

Customers

Thank You

Interview Guide:

1. On what Spectrum band you are operating in Andhra Pradesh/Telangana?
2. How many Cell Sites you have in Andhra Pradesh/Telangana?
3. How many Customer Care Centers you have in Andhra Pradesh/Telangana?
4. What are top five value added services you offer to customers?
5. What is your revenue in Andhra Pradesh/Telangana?
6. How many subscribers you have in Andhra Pradesh/Telangana?
7. How many prepaid selling outlets you have in Andhra Pradesh/Telangana?
8. How many recharge outlets you have in Andhra Pradesh/Telangana?

Identifying parameters for customers for mobile operator selection- A study of Andhra Pradesh

A synopsis submitted to the University of Hyderabad in partial fulfilment for the award of the degree of

DOCTOR OF PHILOSOPHY

By

Sandeep Dongre

(Registration No: 09MBPH05)

Under the supervision of Dr. Sapna Singh, Associate Professor

School of Management Studies

University of Hyderabad

Hyderabad–500046.

MAY- 2016

Table of Contents

List of Tables

List of Figures

CHAPTER I

INTRODUCTION

1.1. Indian Telecom Sector

The telecom services have been recognized the world-over as an important tool for socio-economic development for a nation. It is one of the prime support services needed for rapid growth and modernization of various sectors of the economy. Indian telecommunication sector has undergone a major process of transformation through significant policy reforms, particularly beginning with the announcement of National Telecom Policy (NTP) 1994 and was subsequently re-emphasized and carried forward under NTP 1999. Driven by various policy initiatives, the Indian telecom sector witnessed a complete transformation in the last decade. It has achieved a phenomenal growth during the last few years and is poised to take a big leap in the future.

1.2. Elements of Telecom

In cellular service there are two main competing network technologies: Global System for Mobile Communications (GSM) and Code Division Multiple Access (CDMA). Understanding the difference between GSM and CDMA will allow you to choose a carrier that uses the preferable network technology for your needs.

Coverage: The most important factor is getting service in the areas you will be using your phone. Upon viewing competitor's coverage maps you may discover that only GSM or CDMA carriers offer cellular service in your area. If so, there is no decision to be made, but most people will find that they do have a choice.

Data Transfer Speed: With the cellular phones doing double and triple duty as streaming video devices, podcast receivers and email devices, speed is important to those who use the phone for more than making calls. CDMA has been traditionally faster than GSM, though both technologies continue to rapidly leapfrog along this path.

Subscriber Identity Module (SIM) cards: GSM phones use SIM cards. The removable SIM card allows phones to be instantly activated, interchanged, swapped out and upgraded, all without carrier intervention. The SIM itself is tied to the network, rather than the actual phone.

Phones that are card-enabled can be used with any GSM carrier. The CDMA equivalent, an R-UIM card, is only available in parts of Asia but remains on the horizon for the U.S. market. CDMA carriers in the U.S. require proprietary handsets that are linked to one carrier only and are not card-enabled. To upgrade a CDMA phone, the carrier must deactivate the old phone then activate the new one. The old phone becomes non-usable.

Roaming: For most part, both networks have fairly concentrated coverage in major cities and along major highways. GSM carriers, however, have roaming contracts with other GSM carriers, allowing wider coverage of more rural areas, often without roaming charges to the customer. CDMA networks may not cover rural areas as well as GSM carriers, and though they may contract with GSM cells for roaming in more rural areas, the charges to the customers will be significantly higher.

A SIM card is the heart of the cell phone. It is equivalent to the phone plug that your desk phone at home plugs into. It carries vital information such as the phone number, the carrier that supplies it and the rates you will pay when placing or in some cases when receiving phone calls.
Based on the arrangement you have with your SIM card vendor or the cell phone carrier, the SIM card can be Post-paid or Pre-paid. Post-paid SIM cards allow you to talk all you want and the cell phone carrier will log your calls and send you a bill at the end of each month.

Telecom Distribution represents the steps needed to get services to customers, including transactions, logistics, and fulfilment. Distribution involves finding and motivating participants in the channel leading from production to delivery, covering geographical and vertical markets, and putting the products within reach of customers. The ability to customize channels to evolving customer locations and needs has created unprecedented information flow between sellers and buyers. This has led to the development of channels like organized retail, Post-paid channel etc.

1.3. Indian Telecommunications at a Glance

In India the number of telephone subscribers increased from 957.61 million by September, 2014 to 962.63 million by October 2015, a monthly growth rate of 0.52%. During the same period the urban subscription increased from 569.56 million to 570.58 million and the rural

subscription increased from 388.05 million to 392.05 million with the monthly growth rates of 0.18% and 1.03% respectively.

The overall Tele-density for end of September to the end of October in India increased from 76.75 to 77.07. Whereas the Urban Tele-density increased from 148.07 to 148.10 and Rural Tele-density increased from 44.96 to 45.39. The shares of urban subscribers and rural subscribers were 59.27% and 40.73% respectively.

For the same period the total wireless subscriber base increased from 930.20 million to 935.35 million, thus registering a monthly growth rate of 0.55%. While wireless subscription in urban areas increased from 547.70 million to 548.78 million and in rural areas it increased from 382.50 million to 386.57 million. The monthly growth rates of urban and rural wireless subscription were 0.20% and 1.06% respectively.

1.4. Highlight of Subscription Data as on 30th June2015

Table 1.1: Highlights of subscription Data as on 30th June 2015

Particulars	Wireless	Wireline	Total Wireless + Wireline
Total Subscribers (Million)	975.78	26.27	1,002.05
Total Net Addition (Million)	2.44	-0.10	2.34
Monthly Growth Rate	0.25%	-0.36%	0.23%
Urban Subscribers (Million)	558.83	21.32	580.15
Urban Subscribers Net Addition (Million)	0.05	-0.03	0.02
Monthly Growth Rate	0.01%	-0.16%	0.003%
Rural Subscribers	416.95	4.95	421.90
Rural Subscribers Net Addition	2.38	-0.06	2.32
Monthly Growth Rate	0.57%	-1.22%	0.55%
Overall Teledensity	77.58	2.09	79.67
Urban Teledensity	143.42	5.47	148.90
Rural Teledensity	48.03	0.57	48.60
Share of Urban Subscriber	57.27%	81.17%	57.90%
Share of Rural Subscriber	42.73%	18.83%	42.10%

1.5. The Tele-density in Andhra Pradesh is much higher than National average

Table 1.2: Circle wise overall tele-density at the end of October 2015

All India	77.07
Assam	50.71
Bihar	48.33
Madhya Pradesh	57.52
J&K	70.97
UP	57.86
Odisha	63.93
North East	72.72
Rajasthan	76.51
Andhra Pradesh	81.53
West Bengal	73.81
Haryana	80.79
Gujarat	93.56
Maharashtra	92.43
Karnataka	94.56
Kerala	96.29
Punjab	103.88
Himachal Pradesh	110.24
Tamil Nadu	115.16
Delhi	233.42

1.6. Mobile Number Portability

During the year 2013-14, 27.32 million subscribers have submitted their porting requests to different service providers for availing MNP facility. With this the Mobile Number Portability requests increased from 89.70 Million subscribers at the end of March 2013 to 117.01 Million at the end of March 2014. In May-15, a total of 3.24 million subscribers submitted their requests for MNP. This increased the cumulative MNP requests from 157.01 million by the end of Apr-15 to 160.25 million by the end of May-15.

For MNP, Service area is divided in zones. In MNP Northern and Western India, the highest number of requests till date have been received from Rajasthan (about 15.13 million) followed by Gujarat (about 12.97 million). In MNP Southern and Eastern India, the highest number of requests till date havebeen received in Karnataka

1.7. Key Players in the Market

The private access service providers held 90.55% market share of the wireless subscribers whereas the two Public Sector Unit(PSU) access service providers which is BSNL and MTNL held only 9.45% market share. Wireless market share in terms of total subscribers in India- Bharti Airtel is the market leader, with a 22.7 per cent share of total subscription, followed by Vodafone at 18.4 per cent share.

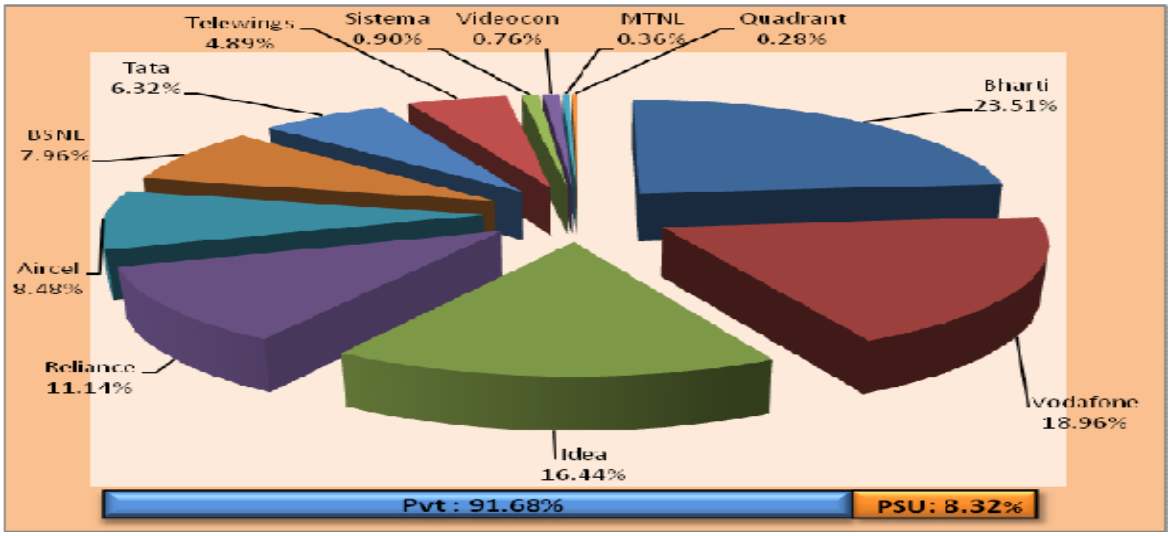


Figure 1: Service Provider wise Market Share in Wireless Subscribers

1.8. Way Froward

The Indian telecom has experienced rapid growth and will emerge as a leading player in the virtual world by having 700 million internet users out of the 4.7 billion global users by 2025. This exponential growth in the Indian telecommunication sector is due to government's favourable regulations and introduction of 4G services. Operators are on an expansion mode and are investing heavily on telecom infrastructure. Foreign telecom companies are acquiring considerable stakes in Indian companies which make this sector to be an important contributor to economic growth. This development facilitates optimization of resources for services like security and surveillance, remote monitoring of ATM machines, home automation, traffic management, retail, logistics and grid energy. With increasing double incomes and spending power, the government is keen to develop rural telecom infrastructure for increasing rural telecom coverage.Favourable investment climate and positive reforms will ensure that India's high potential is realized. Despite the challenges, the Indian telecom industry will flourish because of the immense potential in terms of new users.

CHAPTER II
REVIEW OF LITERATURE

2.1. Review of Literature

SN	Factors/Parameters	Authors
1	Company image and reputation, effective marketing	Balaji (2009), Bloemer et al. (1998), Butt & Run (2009), Dahari et al. (2011), Hao et al. (2009), Iqbal et al. (2011), Karimpanal (2003), Khan and Afsheen (2012), Krishnan and Kothari (2008), Chintan Shah (2012), Elizabeth and Mukwada (2014), Haque et al. (2010), Kumar (2011), Rahman et al. (2011), Paulrajan and Rajkumar (2011), Rajpurohit and Vasita (2011), VikasGautam and Mukund Kumar (2011)
2	Network quality , VAS	Bansal and Bansal (2013), Butt & Run (2009), Chakraborty (2013), Dinesh Kamath, (2011) , Karimpanal (2003), Khan and Afsheen (2012), Krishnan and Kothari (2008), Kumar et al. (2014), Paulrajan and Rajkumar, (2011), Rzepakowski (2008) , Amulya and Anand (2012), Birke and Swann (2005), Chintan Shah (2012), Kumar (2011), Paulrajan and Rajkumar (2011), Power (2009), Rajpurohit and Vasita (2011), Bamhoom (2006), ShikhaOjha (2009), VikasGautam and Mukund Kumar (2011)
3	Service quality, Sales promotion,	Bloemer et al. (1998), Butt & Run (2009), Eshghi et al.(2008), Hao et al. (2009), Kalavani (2006), Khan and Afsheen (2012), Krishnan and Kothari (2008), Kumar et al. (2014), Malhotra et al (2011), Paulrajan and Rajkumar, (2011), Rzepakowski (2008) , Sharma and Ojha (2004), Suthar et al. (2012) , Anita et al. (2005), Chintan Shah (2012), Haque et al. (2010), Kumar (2011), Rahman et al. (2011), VikasGautam and Mukund Kumar (2011)
4	Tariff , Availability	Chakraborty (2013), Karimpanal (2003), Kumar et al. (2014), Muthuswami et al. (2007), Paulrajan and Rajkumar, (2011), Turel and Serenko (2006), Anita et al. (2005) , Chowdhuri et al. (2013), Gupta et al. (2009)
5	Relationship between customer retention (CR), customer loyalty (CL), and customer satisfaction (CS)	Gerpott et al. (2001), Hao et al. (2009), Kalpana and Chinnadurai, 2006
6	Switching cost, customer value, perceived value	Hao et al. (2009), Iqbal et al. (2011), Malhotra et al (2011)
7	Discounts, billing, hidden charges	Karimpanal (2003), Krishnan and Kothari (2008), Kumar et al. (2014), Rzepakowski (2008) , Anita et al. (2005), Chintan Shah (2012)
8	Customers' demographic factors, social influences, group influences	Khan and Afsheen (2012), Muthuswami et al. (2007), Sudheesh (2015) , Haque et al. (2010), SulekhaMunshi (2011), VikasGautam and Mukund Kumar (2011)
9	Spectrum	Gupta, IANS (2015), Thomas (2012)

2.2. GAP Analysis and need for this study

Though we have almost 1billion mobile users in India, we still can't point out for sure the factors that help a customer to choose a Mobile operator. When it comes to the Mobile operator, the knowledge of a customer is limited and hence most of the decisions related to purchase are more driven by the noise a typical mobile company makes in the market to attract the customer. While one mobile operator like Docomo will only talk about key benefits or offers to its customers in its national advertisements, other operator like Idea will mostly use the emotional connect in its national advertisements to attract the customer.

The difference in strategies of mobile operators in attracting the customers leads to a lot of confusion in the minds of gullible buyers and they tend to adopt a not so standard approach in selecting the mobile operator. The literature does not talk about a standardized approach that a customer should adopt in selecting a mobile operator. Infact, the literature does not categorically mention the importance of Network in selecting a mobile operator. It does not explore the resultants like call quality, call drop etc. and the key factors that cause them. Hence the importance of Network in being one of the key factors in the customer's decision making process remains undermined.

The literature makes only a passing reference to distribution- as a key factor in customers mind while choosing a mobile operator. This also happens because distribution is very specific to an area. While it will not be difficult for anybody to make out the importance of distribution, we fail to realize the immense impact it has on choice.

The activities that take place in a Customer care centre are things which have been untouched by literature and hence its impact on customer choice. Customer care has been a reason for customers switching between operators and this need to be explored.Another gap that comes out strongly is analysing the impact of Value Added Services (VAS) in being a key factor in choosing a mobile operator. This too needs to be explored in depth.

Today, the mobile freedom has been achieved in the true sense and this been possible only after the introduction of Mobile Number Portability(MNP) in India. Customers will increasingly make use of MNP and they should be equipped enough to take a wise decision via MNP. The scope of our study is a step in the direction of educating these customers in making the right choice of mobile operator.

2.2. Scope of the study

The study includes an examination and analysis of factors leading to the selection of mobile operators by customers and strategies adopted by them to attract customers. The data is collected from Distributors, Retailers and Franchises of select Mobile operators from the twin cities of Hyderabad & Secunderabad and Vishakhapatnam. It includes a customer survey to elicit their responses on the strategies adopted by mobile operators and services rendered.
This study is of Andhra Pradesh which is a Telecom Circle having both Andhra Pradesh and Telangana.

2.3. Research Gaps

- Research does not detail the process on how Network should be used for TSP (Telecom Service Provider) selection.
- No importance to distribution as key factor for selection of a TSP
- Role of Operator Tariffs in customer acquisition
- Impact of customer care services and value added services on decision making of customer.
- No consolidated study available that makes use of all key parameters (maximum 2 factors at a time done till now) to evaluate TSPs

2.4. Research Questions

- How exactly does the network affect the quality of calls, call drops and how does one make use of it in selecting a service provider?
- How does distribution effect the sale and what perception does it have on consumer's minds?
- What is the role of Tariffs and how it impacts the customer's selection?
- How Values Added Service (VAS) and Customer care will impact customers in TSP selection?
- What is a standardized and consolidated approach in selecting a Mobile Operator?

2.5. Objective of the study

Broad Objective

Identifying parameters for customers for mobile operator selection- A study of Andhra Pradesh

Specific Objectives

1. To identify network parameters and compare mobile operators on them.
2. To study the impact of Distribution on selection of TSPs
3. To study the impact of Tariffs- Pre-paid and Post-paid on the selection of TSPs
4. To study the impact of Customer Care and Value added services on selection of TSPs
5. To find the best mobile operator in Andhra Pradesh

2.6. Hypotheses of the study

H1: Higher retailer coverage results into higher sales for Telecom Service Providers (TSPs).

H2: There is a significant difference in the sales of different service providers.

H3: Prepaid plans have a significant effect on selection of Telecom Service Providers (TSPs).

H4: Post-paid paid plans have significant effect on selection of Telecom Service Providers (TSPs).

H5: Customer care services have significant effect on selection of Telecom Service Providers.

H6: Value Added Services have significant effect on selection of Telecom Service Providers

CHAPTER III

RESEARCH METHODOLOGY

3.1. Research Design

It is both Exploratory and Descriptive in nature.

Exploratory because

- Literature shows some factors have impact on selection of Service Providers. But there are other factors too which have impact in choosing of Telecom Service Providers(TSPs). We are exploring these additional factors.
- Through Pilot Study, two more variables were found to be having impact on customer selection of TSPs
- Used Exploratory study in this research to explore Network parameters of TSPs as it affects the Call quality and Call drops. This fulfils the first objective of the study.
- Extensive use of Interviews with subject experts which is a component of Exploratory studies

Descriptive because

- Study describes distribution reach of TSPs as it exists. It also compares the existing Tariffs and VAS offerings of mobile operators
- This study tries to check only the effect of identified factors and hence descriptive

3.2.Sample justification

- GSM constitutes 91% of total wireless connections; CDMA contributing only 9%.
- In terms of Customers, Prepaid is 85% Post-paid is 15%.
- Hyderabad and Vishakhapatnam contribute 26% of total Andhra Pradesh, hence fairly representative

3.3. Data Collection Plan

3.3.1. Primary Data Collection

Primary data is the first hand information collected from the respondents that has not been previously collected. Data that is collected for the purpose of the study and that not b exist before (Saunders, 2000). Methods of primary data collection, according to Daymon and Holloway (2002) are case studies, interviews, surveys, questionnaire or active participation of the researchers in observing the subjects under the study. This thesis uses interviews and questionnaire method for obtaining primary data. The data was collected from:

1. Distributors of the TSPs in Hyderabad/Secunderabad and Vishakhapatnam.
2. Franchisee in Hyderabad/Secunderabad and Vishakhapatnam
3. Retailers (multi brand) of the TSPs in Hyderabad/Secunderabad and Vishakhapatnam
4. Personal Interviews with Senior Managers of TSPs
5. Pilot done on 120 customers in Hyderabad

3.3.2. Secondary Data Collection

Secondary data is collected from sources such as annual report of service providers, publications, books, journals, magazine, papers presented at seminars, conferences and certain online sources. Additionally, the websites of the companies selected for the study providing annual reports with information concerning image, marketing initiatives, brand building practices etc. are used. The secondary data, also referred to as frame of reference, in this research thesis is literature about customer preferences, loyalty and satisfaction especially in telecom sector.

The secondary data used in this thesis is gathered through literature survey. Furthermore, secondary data is collected from company websites that have taken part in the empirical data collection. . The secondary sources used by researcher can be grouped as follows.

Internet: Different websites were used to collect secondary data. These mainly include official websites of Vodafone, Airtel, Idea and DOCOMO. The websites of Government department TDSAT, DOT, TRAI, etc. were also used to get secondary data.

Newspaper and Journals: Number of articles from Newspaper like Times of India, Indian Express and Economic Times were readto get secondary data.

Journals: - The number of issues of the journals like Journal of Technology Management & Innovation, A Journal of Multidisciplinary Research, International Journal of Business Management & Research, Journal of Basic and Applied Scientific Research, International Journal of Research in Commerce and Management, International Journal of Scientific Research, Indian Journal of Management, Indian Journal of Marketing were used to get the secondary data.

Publications: Various Press Releases and Survey reports published by TRAI were refereed for Telecom Subscription data.

Customer service Centres: Data was also collected from Customer service centres of different Telecom Services providers.

Primary data was obtained by the researcher through interview of the managers and distributors of select companies, concerning the policies adopted by companies to attract customers and from customers about major factors leading them to select services of a particular company. The interviewed managers, customers and distributors were contacted in person.

3.4. Data Collection Instrument

For the purpose of this research work, mainly closed questions were used. Only an additional alternative was provided at the end of the questionnaire, an opportunity to leave comments or opinions in form of suggestion within the subject is included in the end of the questionnaire.

The researcher has used a self-administered questionnaire. This method of gathering data, ensures that the respondent filled the questionnaire fully and unbiased. By use of this method, researcher also gets the chance to seek information which will support information provided in the questionnaire by respondent. As discussed in data plan the data was collected from three types of respondent categories: **(1)** Distributors of the Company, Company Franchises and Retailers (2) Managers of Service Providers (3) Customers

(a) *Category One-Distributors, Retailers and Franchisees*

For this research work, self-administered structured questionnaire was chosen. 40 distributors, 33 franchises and 120 retailers were covered from Hyderabad & Secunderabad. 20 distributors, 15 franchises and 60 retailers were covered fromVishakhapatnam. Usually questions are designed to collect three types of information a) information that is used for classification purposes such as people's profile e.g. gender, age b) about individual behaviour e.g. what people do, and c) information about attitudes in terms of opinion or believes etc. (Hague et al., 2004) in order to design the questionnaire for the present research work, all three kinds of questions were included.

(b) *Category Two- Managers of Service Providers:*

In this category, data was collected through semi-structured interviews scheduled with the two seniormanagers from each of the mobile operators in both Hyderabad and Vishakhapatnam. The aim was to acquire insight and general findings using broad questions. The four broad types of information were brought forth. These include: a) Details on Network parameters b) Information in relation to the plans and services of companies and distribution b) Information in relation to their customer preferences, and c) Information in relation to the their strategies and initiatives to increase customers.

The researcher of this thesis also used interviews as method of obtaining primary data, in combination with secondary data as and wherever applicable to the research purpose. The interview questions were adapted or enhanced in their scope due to the new insight gained during the data gathering process. Sekaran (2000) identifies two types of interviews: the unstructured one and the structured one. The classification is done on the basis of their functional degree of flexibility (Kumar 1999).

- Researcher used semi-structured interviews whereby the researcher prepared an interview guide which served as a guideline throughout the interview and ensured that all fields of interest are being covered. Additional questions were asked during the interviews and allowed the researcher to have some flexibility in order to focus on any important aspect that could appear during the interview. Interviewees (Manager from VAS and Customer Service) were questioned in their respective company offices.

(c) *Category Three- Customers:*

In this category data was collected from customers through structured questionnaire. The aim was to gather their preferences about selection of service provider.

3.4.1. Survey Questionnaire Structure

Table 3.1 Questionnaire to the Distributors and Franchises in the study

Issue	Section	Question number
General Information's	1) Name 2) Gender 3) Age 4) Education	Q 1 - Q 4
Services and Plans	1) plan of prepaid 2) sale of prepaid plans 3) retailers cover 4) sales per month	Q 5- Q 6
Motivation factors (leading for selection of mobile operator)	1) Level of satisfaction about plan/company selection 2) Level of satisfaction about pre-paid plans 3) Level of satisfaction about VAS 4) Level of satisfaction about customer care services	Q 7 and Q 8

(Source: Compiled by author)

In the survey related to Distributors, retailers and franchises, items directly compared with customer preferences identified through literature review and pilot study were included and divided into three broad categories. These were rated on a 5-point scale (5-strongly agree and 1- strongly disagree). These were as follows:

- Pride in services- Employee and consumer perceptions regarding the level of customer satisfaction with the offers and services provided. Six statements are used which reflects the Reliability dimensions.

- Value Added Services- seven statements is been used that reflect the Competence dimension. Six statements are also included to access the reputation and image of the company.
- Accessibility and Communication- Perceptions regarding how easy it is to access a customer and whether the customer cares are competent enough to understand the customer complaints and queries and explain options to them and take a follow-up action. Seven statements is been used in the questionnaire.

3.5. Verification of Conclusions

Steps taken to ensure Valid and Reliable Data Collection: - Following steps were taken to ensure valid and reliable data collection and analysis

1. The target population was identified i.e. Mobile Operators in Hyderabad and Vishakhapatnam city.
2. The representativeness of the sample was ensured.
3. The secondary data sources were also reliable since researcher used data from press releases of Government Organizations.
4. Structured questionnaire was used.
5. While administering the data collection instrument, the respondents were assured of confidentiality so that they could express their actual feelings. This has removed bias to most extent.
6. Incompletely filled Responses were discarded.
7. To avoid errors researcher has entered data with much care and used SPSS and Microsoft Excel.
8. The researcher has been very active subscriber and has been serving telecom companies for about 10 years.

Inference: The questionnaires are also tested by applying Cronbach Alpha measure. The results of the same are as follows:

Table 3.2 Reliability Statistics

Reliability Statistics for Distributors		**Reliability Statistics for Franchises**		**Reliability Statistics for Retailers**	
Cronbach's Alpha	N of Items	Cronbach's Alpha	N of Items	Cronbach's Alpha	N of Items
.845	25	.952	31	.838	104

The questionnaire is said to be reliable if the score is above 60 % and as the above table reveals, the Cronbach's Alpha for Distributor's questionnaire, Franchises questionnaire and Retailer's questionnaire is 0.845 i.e. 84.5 percent, 0.952 i.e. 95.2 percent and 0.838 i.e. 83.3 percent which is very high and indicates strong internal consistency among the given items.

3.6. Data Collection Technique

Purposive sampling method is used to collect data. It sometimes becomes necessary to obtain information from specific target-respondents who will be able to provide the desired information either because they are the only one who can give the desired information or because they satisfy to some criteria set by researcher. For the study in question, the respondents for survey distributors, retailers and franchises of the companies get selected for the study. These respondents are able to provide desired information on behaviour, availability and attitude of the customers using services and companies providing services. For this a purposive sampling was found more suitable and hence used. Similarly, the respondents who were mainly available at their workplace and approached on the basis of their convenience, to get desired information and avoid their annoyance.

3.7. Sampling Plan

Table 3.3: Sample Plan

S.No.	Object	Sample Size
1	**Number of Distributors**	a) All Distributors from Hyderabad/Secunderabad (59 across all TSPs- Vodafone, Airtel, Idea, Docomo) b) All Distributors from Vishakhapatnam (29 across all TSPs- Vodafone, Airtel, Idea, Docomo) Total SS on Distributors- 88 **CENSUS survey for Distributors**
2	**Number of Franchisees**	a) All Franchisee from Hyderabad/Secunderabad (62 Franchisee across all TSPs- Vodafone, Airtel, Idea, Docomo) b) All Franchisee from Vishakhapatnam (20 Franchisee across all TSPs- Vodafone, Airtel, Idea, Docomo) Total SS on Franchisee – 82 **CENSUS survey for Franchisee**
3	**Number of Retail Outlets**	a) 160 Outlets in Hyderabad/Secunderbad selling all brands (Vodafone, Airtel, Idea, Docomo) b) 80 Outlets in Vishakhapatnam selling all brands (Vodafone, Airtel, Idea, Docomo) Total SS on Retail Outlets- 240
4	**Senior Managers-(GM/DGM) (Post Paid/VAS/Customer Care OR Head of all functions)**	2 Senior Managers (General Manager/DGM Level) from each of the 4 TSPs in Hyderabad/Secunderabd (8 Senior Managers in Hyderabad/Secunderabad) 2 Senior Managers (General Manager/DGM Level) from each of the 4 TSPs in Vishakhapatnam (8 Senior Managers in Vishakhapatnam) Total SS on Senior Managers- 16

The proposed sample as is mentioned in the table, but on account of data loss, the analysis is done on data collected from the actual number of distributors which were 60, Franchises 48 and retailers 180.

- 40 distributors in Hyderabad and 20 distributors in Vishakhapatnam were analyzed.
- 33 franchisee in Hyderabad and 15 franchisee in Vishakhapatnam were analyzed.
- 180 retailers in Hyderabad and 60 retailers in Vishakhapatnam were analyzed.

3.8. Data Collection issues

The primary data have been collected based on survey method. The designed structured questionnaire has been circulated to a larger population after the pilot study. The questionnaire was circulated to selected sample size of distributors, franchises and retailers. The data have been collected over a period of five months from February 2015 to June 2015. Distributors and franchises of the select companies, when approached, refused to provide the required information on account of not revealing information. Therefore, permission has been sought from the Vice-President and Territory Managers and later appointment has been taken to collect data. Data from retailers have been collected directly from their shops in Hyderabad and Vishakhapatnam.

3.9. Data Analysis Techniques

Data has been analysed using statistical tools such as ANOVA, Chi-Square test, Cross-tabulation, Rank Correlation, Karl Pearson's Correlation and Regression. SPSS is used to facilitate the same. These techniques used in marketing research is also being applied to the sample to evaluate the consumer's attitudes and beliefs that lead the brand decision by consumers. A brief note on the tools used is as follows:

Table 3.4: Data Analysis Techniques

Test	Analysis	Purpose
Rank Correlation	**Analyze- Descriptive statistics- Frequency**	**To analyse the rankings of respective parameter.**
Cross Tab	**Analyze- Descriptive statistics- Cross tab**	**To Present relationship btw 2 variables**
Chi Square/ANOVA	**Analyze- Compare Means-**	**To analyse the group difference among the sales of TSPs**
Regression Analysis	**Analyze- Regression - Linear**	**To find effect of following parameters on selectionTSPs.** **1. Retailer Coverage** **2. Prepaid and Post-paid Sales** **3. Customer care and VAS**

CHAPTER IV

DATA ANALYSIS AND FINDINGS

4.1. Factors Influencing Customer for selecting Service Provider

In order to measure high influencing factors which drive consumer's mind to select service provider among other service providers, rank correlation is applied. As literature review reveals that the choice of service provider's depend upon various factors or criteria such as network, tariffs provided by company, value added services, customer care supports, discounts/offers and availability whereas factors such as internet and celebrity endorsement have been taken to explore its influence on choice of the service provider. These two factors are included on the basis of personal observation and as an outcome of pilot study. Ranks are assigned to these factors based on their mean values. Analysis is done for each company individually and collectively.

Table 4.1.1. Ranks Assigned to Factors influencing customer for choice of Service Provider

Factors	**Rank**
Discount	**4**
Value Added Services	**5**
Customer Care	**6**
Tariffs	**2**
Network Quality	**1**
Celebrity Endorsement	**7**
Availability	**3**
Internet	**8**

Network quality is ranked first. Tariff concerned with call rates is ranked second. It is followed by availability and Discounts. The factor that is ranked fifth is Value Added Services, which iterates the fact that Indian consumers look for value for money to make a choice of service provider. The study shows astonishing results that factor which came out from pilot study as an influencing factor are celebrity endorsement and Internet have got least rank that is7 and 8 respectively. This shows that customers do consider these factors for assessment and selection of service provider but give least importance to these two factors in making choice of service provider. Though companies are using these two factors as a weapon to compete and creating new customers.

4.2. Objective-1

To identify network parameters and compare Mobile Operators on them

Table 4.2.1. Spectrum band and their Characteristics

	800MHz	900MHz	1800MHz	2100MHz	2600MHz
Technology Options	3GPP and WiMAX	3GPP only			3GPP and WiMAX
Amount of Spectrum available	Mobile operators are likely to have access to smaller contiguous bands		Mobile operators are likely to have access to larger contiguous bands		
Coverage	Higher		Lower		
Cell size	Greater Cell Size		Smaller Cell Size		
Cost	Lowest cost deployment of national network		Deployment up to 15 times more expensive than sub-1 GHz		
Value of Spectrum	High value		Lower value		

With existing technologies, the 900MHz is more superior to 1800MHz because of following:

As per laws of physics, higher the wavelength, lower is the frequency. This signifies that signals on bands of higher frequency will travel a lesser distance as compared to signals on lower frequency bands

This propagation characteristic also makes signals transmitted on 900 Mhz more potent when it comes to indoor coverage. It has been proven that 900 Mhz band has 30-40 per cent better coverage than 1800 Mhz band.

To make up for this, mobile companies on 1800 Mhz have to invest more in setting up larger number of base stations for similar coverage as in the 900 Mhz band. (Analysis Mason report)

4.2.1. Analysis Mason report says

- Very high investment for movement from 900Mhz ecosystem to 1800Mhz ecosystem.
- Additional installation of 1,71,954 base stations
- Incremental capital expenditure of Rs.54,739crores
- Another investment of Rs.26,653crore for new tower deployment.

- 900Mhz band has a superior commercial ecosystem than 1800 Mhz. That is because 900Mhz frequency band has been in use for mobile communications globally for over

20 years and as a result technology standards have been better developed compared with 1800 Mhz band, which has been in use only recently.

4.2.2. Comparison of Network Parameters of Various Telecom Service Providers

Table 4.2.2 Spectrum Usages by TSPs

	Hyderabad-Secunderabad		Vishakhapatnam	
	Spectrum band (MHz frequency)	No of Base Stations	Spectrum band	No of Base Stations
Airtel	900/1800 (60:40)	4025	900/1800 (85:15)	2280
Vodafone	1800	4989	1800	2435
Idea	900	4028	900	2280
Tata DoCoMo	1800	1800	1800	2444

1. IDEA is best in Hyderabad-Secunderabad in Call Clarity & Call drops. Airtel is No.2 & Vodafone No.3

2. IDEA & AIRTEL are best in Vishakhapatnam in Call Clarity & Call drops. Vodafone is No.3

4.3. Objective 2

To study the impact of Distribution on selection of TSPs

Among the 40 distributors of various TSPs in Hyderabad, 6 have retailer coverage of less than 150 and have daily a sale between 100 and199 connections. 8 distributors with a retailers coverage of 150 to 250 outlets used sell 100 to 199 sales per day, 4 distributors with a retailers coverage of 150 to 250 outlets used sell 200 to 299 sales per day, similarly 10 distributors with a retailers coverage of 250 to 350 outlets used sell 200 to 299 sales per day. Likewise 3 distributors witharetailer coverage of 550 and outlets used sell 300 to 399 sales per day. It shows a linear relationship between size of retailer coverage and TSP sales.

Table 4.3: Cross-tabulation between Size of Retailer Coverage and levels Sales

		Sales			Total
		100-199	200-299	300-399	
Retailer Coverage	Less than 150	6	0	0	6
	150-250	8	4	0	12
	250-350	1	10	2	13
	350-450	0	3	3	6
	550 and above	0	0	3	3
Total		15	17	8	40

4.3.1. Distribution strength and Sales

H1: Higher retailer coverage results into higher sales for the Telecom Service Providers.

A bivariate correlation analysis was carried out know the relationship between size of retailer coverage and level of TSP sales. A significant correlation ($r = 0.812$; $p < 0.001$) was found between size of retailer coverage and level of TSP sales. This shows a strong and positive relationship between them. It means with increase in retailer coverage, sales increases significantly and positively.

Table 4.3.1: Correlations between size of retailer coverage and level of TSP sales.

		Retailer Coverage	Sales
Retailer Coverage	Pearson Correlation	1	.812**
	Sig. (2-tailed)		.000
	N	40	40
Sales	Pearson Correlation	.812**	1
	Sig. (2-tailed)	.000	
	N	40	40

**. Correlation is significant at the 0.01 level (2-tailed).

Furtherly, the Regression Analysis was carried out to know the effect of retailer coverage on sales of the TelecomService Providers (TSPs). The prediction model was found statistically significant, $F(1, 38)=73.551$; $P = 0.001$, and was accounted for approximately 66 percent of the variance in sales of TSPs ($R^2=0.659$, adjusted $R^2=0.650$). It means the predictor variable, i.e., retailer coverage was able to explain 66 percent of total variance of the dependent variable, i.e., TSP Sales.

Table 4.3.2 : Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.812[a]	.659	.650	44.182

a. Predictors: (Constant), Retailer Coverage

For a good model fit, the difference between R^2 and adjusted R^2 should not be more than 0.05. It has been achieved (R^2 – adjusted R^2= 0.009 which was lesser than 0.05) for this study. An 81 percent (R=0.812) of correlation exists between the observed and predicted values of dependent variable. The summary of the regression model was presented in Table 4.3.2. The ANOVA table shows the model as significant at the 0.000 level (see Table4.3.3).

Table 4.3.3: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	143573.413	1	143573.413	73.551	.000[b]
	Residual	74176.587	38	1952.015		
	Total	217750.000	39			

a. Dependent Variable: Sales

b. Predictors: (Constant), Retailer Coverage

Standardized regression weights were considered as parameters estimates for this study because all the items were measured on the same scale. The t-values was found statistically significant (t= 4.854 ;P<0.01) with a regression coefficient of 0.812. Results were shown in Table 4.3.4.

Table 4.3.4 : Regression Coefficientsretailer coverage

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	88.393	18.197		4.857	.000
	Retailer Coverage	.534	.062	.812	8.576	.000

a. Dependent Variable: Sales

Since the standardized coefficient was significant, H1 was accepted and can be concluded that retailer coverage has significant effect on TSP sales. From this we can draw an inference that higher the retailer coverage higher the sales for TSPs will be.

To know whether the sales of different TSPs differ significantly or not, we framed a hypothesis as follow;

4.3.2. Difference among the sales of TSPs

H2: There is a significant difference in the sale of different Telecom Service Providers in Hyderabad

To test this hypothesis, one-way Analysis of Variance (ANOVA) was used to analyse whether there a significant difference exist among the sales of various TSPs. The result of descriptive statistics was shown in the following Tables 4.3.6.

Table 4.3.5: Cross-tabulation between TSPs and their Sales

		Sales			Total
		100-199	200-299	300-399	
TSP	Airtel	1	1	8	10
	Idea	1	9	0	10
	Vodafone	4	6	0	10
	DoCoMo	9	1	0	10
Total		15	17	8	40

Descriptive statistics was carried out to know descriptive of four different groups of TSPs. Table 4.3.6 shows that, the mean and standard deviation values for the sales of Airtel were found to be (M=320, SD= 67.49), for Idea sales these were to be (M=240, SD=31.6), for Vodafone sales these were to be (M=210, SD=51.4) and for DoCoMo these were to be (M= 160, SD= 31.6).

Table 4.3.6: Descrpitives for Sales of TSPs

	N	Mean	Std. Deviation	Std. Error
Airtel	10	320.00	67.495	21.344
Idea	10	240.00	31.623	10.000
Vodafone	10	210.00	51.640	16.330
DoCoMo	10	160.00	31.623	10.000
Total	40	232.50	74.722	11.815

Levene's test was conducted to know whether the homogeneity of variances of all the four TSP sales were equal or not and we found a significant Levene's statistics; F (3, 36) = 3.548, p = 0.024. See the Table.4.3.7. It means, variances in sales of all four TSPs were not equal. Hence, it doesn't meet the criteria for assumption of homogeneity of variances.

Table 4.3.7: Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
3.548	3	36	.024

When it violets the assumption of homogeneity of variances, ANOVA would not be an appropriate test to carry out further analysis. For this, we use an alternate F-test i.e, Welch Statisitics was carried out and found a significant F value (3, 19.354) = 18.865 at p =.000.

Table 4.3.8 :ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	134750.000	3	44916.667	19.482	.000
Within Groups	83000.000	36	2305.556		
Total	217750.000	39			

Table 4.3.9 : Robust Tests of Equality of Means

	Statistic[a]	df1	df2	Sig.
Welch	18.865	3	19.354	.000

a. Asymptotically F distributed.

This means that there is a significant difference among the sales the four TSPs. Hence H2 was accepted. But to know further which TSPs differ significantly with each other in terms of sales, Games-Howell Post Hoc test was carried. It provides a Multiple Comparisons analysis between and among the four groups (see Table 4.3.10).

Multiple Comparisons

Dependent Variable: Sales

Table 4.3.10: Games-Howell Post Hoc test

(I) TSP	(J) TSP	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Airtel	Idea	80.000*	23.570	.022	10.65	149.35
	Vodafone	110.000*	26.874	.004	33.54	186.46
	DoCoMo	160.000*	23.570	.000	90.65	229.35
Idea	Airtel	-80.000*	23.570	.022	-149.35	-10.65
	Vodafone	30.000	19.149	.426	-25.22	85.22
	DoCoMo	80.000*	14.142	.000	40.03	119.97
Vodafone	Airtel	-110.000*	26.874	.004	-186.46	-33.54
	Idea	-30.000	19.149	.426	-85.22	25.22
	DoCoMo	50.000	19.149	.083	-5.22	105.22
DoCoMo	Airtel	-160.000*	23.570	.000	-229.35	-90.65
	Idea	-80.000*	14.142	.000	-119.97	-40.03
	Vodafone	-50.000	19.149	.083	-105.22	5.22

*. The mean difference is significant at the 0.05 level.

From the results of Games-Howell test, we can find that, there was a significant difference in sales of Airtel and all other TSPs. Likewise, a significant difference exist between sales of Idea and DoCoMo with a mean difference of 80 sales, Airtel and Idea with a mean difference of 80 sales, Airtel and Vodafone with a mean difference 110 sales, Airtel and DoCoMo with a mean difference of 160 sales respectively.

4.4. Objective –3

To study the impact of Tariffs (Pre-paid plan and Post-paid plans) on the selection of TSPs

4.4.1.Pre-paid Plans

H3: Prepaid plans have significant effect on selection of Telecom Service Providers.

The Regression Analysis was carried out know the effect of prepaid plans on selection of Telecom Service Providers (TSPs). The prediction model was found statistically significant $F(1, 58)=45.002;P = 0.000$, and was accounted for approximately 44 percent of the variance

in selection of TSPs (R^2=0.437, adjusted R^2=0.427). It means the predictor variable, i.e., prepaid plans was able to explain 43 percent of total variance of the dependent variable, i.e., selection TSPs.

Table 4.4.1: Regression Model Summary for Prepaid Plans

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.661[a]	.437	.427	1.006

a. Predictors: (Constant), Prepaid Plans

For a good model fit, the difference between R^2 and adjusted R^2 should not be more than 0.05. It has been achieved (R^2 – adjusted R^2= 0.010 which was lesser than 0.05) for this study. A 66 percent (R=0.661) of correlation exists between the observed and predicted values of dependent variable. The summary of the regression model was presented in Table 4.4.1. The ANOVA table shows the model as significant at the 0.000 level (see Table 4.4.2).

Table 4.4.2: ANOVAfor Prepaid Plans

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	45.583	1	45.583	45.002	.000[b]
	Residual	58.750	58	1.013		
	Total	104.333	59			

a. Dependent Variable: Selection of TSP

b. Predictors: (Constant), Prepaid Plans

Standardized regression weights were considered as parameters estimates for this study because all the items were measured on the same scale. The t-values was found statistically significant (t= 6.70 ;P<0.01) with a regression coefficient of 0.661. Results were shown in Table 4.4.3.

Table 4.4.3: Regression Coefficients for Prepaid Plans

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.949	.309		3.067	.003
	Prepaid Plans	.608	.091	.661	6.708	.000

a. Dependent Variable: Selection of TSP

Since the standardized coefficient was significant, H3 was accepted and can be concluded that prepaid plans have a significant effect on selection of TSPs.

Good prepaid plans have an impact on company selection by customers and retailers. This is evident from the company wise correlation results which showthat prepaid plans are significantly correlated with company selection. To test the hypothesis the regression analysis is done using distributor, franchises and retailers data. The Data received from distributors is analysed, the results are shown as follows:

Table 4.4.4: Regression Statistics for Impact of Prepaid Plans on Company Selection at Distributors Data

Model Summary					
Company	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Airtel	1	.486[a]	.236	.140	3.984
Idea	1	.797[a]	.635	.589	1.455
Vodafone	1	.716[a]	.512	.451	1.440
DoCoMo	1	.792[a]	.627	.580	1.473

From above Table 4.4.4, the correlation coefficient (R) is found to be 0.486 whereas the "R square" is found to be 0.236 i.e. 23 percent of the variability can be brought in company selection with respect to prepaid plans for Airtel. For Idea correlation coefficient (R) is found to be 0.797 whereas the coefficient of determination "R square" is found to be 0.635 i.e. 63.5 percent of the variability can be brought in company selection with respect to independent variable prepaid plans, however in case of Vodafone "R" is 0.716 and "R square" is 0.512 that is 51.2 percent. Whereas for DoCoMo coefficient of determination is 0.792, squared multiple correlation is found to be 0.627, that is 62.7 percent variance is explained by prepaid plans. Moreover for all four companies the "Adjusted R square" value of 0.140, 0.589, 0.451 and 0.580 indicates the representation of the sample to the population.

To get confirmed, whether the test is significant or not, the Table 4.4.5 ANOVA is shown.

Table 4.4.5:ANOVA statistics for level of prepaid plans on company selection at Distributors

ANOVA							
Company	Model		Sum of Squares	Df	Mean Square	F	Sig.
Airtel	1	Regression	39.153	1	39.153	2.467	.155[a]
		Residual	126.947	8	15.868		
		Total	166.100	9			
Idea	1	Regression	29.463	1	29.463	13.917	.006[a]
		Residual	16.937	8	2.117		
		Total	46.400	9			
Vodafone	1	Regression	17.414	1	17.414	8.399	.020[a]
		Residual	16.586	8	2.073		
		Total	34.000	9			
DoCoMo	1	Regression	29.141	1	29.141	13.430	.006[a]
		Residual	17.359	8	2.170		
		Total	46.500	9			

For sampled companies ANOVA table indicates regression value. For Airtel the regression value is much lower than the residual value and hence the independent values discussed are insufficient enough to influence the dependent variable. In other words the regression weight for prepaid plans in the prediction of company choice is not significantly different from zero at the 0.05 level of significance. Distributors reasoned that Airtel company has good image in the mind of customers and customers are more concerned of network quality which company promises rather prepaid plans. For Airtel prepaid plans cannot be the only reason of selecting Airtel service provider. Whereas for Idea, Vodafone and DoCoMo the regression value is much higher than the residual value and significant at 0.05 level, thus prepaid plans of these company is sufficient enough to influence the choice of service provider. The next table is depicting the regression coefficients of the independent variables.

Table 4.4.6: Regression coefficient of prepaid plans vs. company selection at Distributors

Coefficients							
company	Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
			B	Std. Error	Beta		
Airtel	1	(Constant)	26.704	5.249		5.087	.001
		Prepaid Plan	-.482	.307	-.486	-1.571	.155
Idea	1	(Constant)	10.443	2.708		3.856	.005
		Prepaid Plan	.582	.156	.797	3.731	.006
Vodafone	1	(Constant)	16.944	1.472		11.513	.000
		Prepaid Plan	.220	.076	.716	2.898	.020
Docomo	1	(Constant)	10.689	1.916		5.578	.001
		Prepaid Plan	.351	.096	.792	3.665	.006

It is inferred that in order to influence retailers and customer for choice of particular service provider the attention is to be concentrated on prepaid plans. As it can be seen from the result Table 4.4.6 that for Airtel the significance value is 0.155 which is higher than the definite probability value 0.05. But for other three service provider prepaid plans have impact on company selection as the significance value is lower than 0.05. This coefficient table provides different set of regression equation for predicting response variable.

To calculate the effect of prepaid plans on company selection, the model can be framed from the coefficient table for all the three service providers as follows:

- Idea :CS = 10.443 + 0.582 × PRP
- Vodafone : CS = 16.944 + 0.220× PRP
- DoCoMo : CS = 10.689 + 0.351× PRP

From the equation it is confirm that if the prepaid plans value will increase by one the selection of service provider will also increase by 0.582 in case of Idea, for Vodafone it will increase by 0.220 and for DoCoMo it will increase by 0.351.

4.4.2. Post-paid plans

H4: Post-paid plans have significant effect on selection of Telecom Service Providers.

The Regression Analysis was carried out know the effect of post-paid plans on section of Telecom Service Providers (TSPs). The prediction model was found statistically significant, F (1, 58)=122.4;P<0.001, and was accounted for approximately 68 percent of the variance in selection of TSPs (R^2=0.679, adjusted R^2=0.824). It means the predictor variable, i.e., Post-paid plans were able to explain 68 percent of total variance of the dependent variable, i.e., selection of TSPs.

Table 4.4.7: Regression Model Summary for Post-paid Plans

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.824[a]	.679	.673	.760

a. Predictors: (Constant), Postpaid Plans

For a good model fit, the difference between R^2 and adjusted R^2 should not be more than 0.05. It has been achieved (R^2 – adjusted R^2= 0.006 which was lesser than 0.05) for this study. An 82 percent (R=0.824) of correlation exists between the observed and predicted values of dependent variable. The summary of the regression model was presented in Table 4.4.7. The ANOVA table shows the model as significant at the 0.000 level (see Table 4.4.8).

Table 4.4.8: ANOVA for Post-Paid Plans

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	70.801	1	70.801	122.460	.000[b]
	Residual	33.533	58	.578		
	Total	104.333	59			

a. Dependent Variable: Selection of TSP

b. Predictors: (Constant), Postpaid Plans

Standardized regression weights were considered as parameters estimates for this study because all the items were measured on the same scale. The t-values was found statistically significant (t= 11.06 ;P<0.01) with a regression coefficient of 0.824. Results were shown in Table 4.4.9.

Table 4.4.9: Regression Coefficients for Post-Paid Plans

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.575	.226		2.541	.014
	Post-Paid Plans	.765	.069	.824	11.066	.000

a. Dependent Variable: Selection of TSP

Since the standardized coefficient was significant, H4 was accepted and can be concluded that Post-paid plans have significant effect on selection of TSP.

Impact of Post-paid plans on selection of service provider

Customers in the present scenario are very conscious about plans. As the information about plans of all service providers is easily accessible which influence customers to seek information and compare plans. Customers generally choose plan which give them maximum benefits. Therefore there is a need to evaluate the impact of post-paid plans in selection of service provider, the regression is carried out. Before checking for impact of independent factor, variables are been analysed for their relationship.

Results show that there is a positive significant relationship found between selection of service provider/company selection and postpaid plan. Coefficient is been 0.759, 0.738, 0.795 and 0.883 for Airtel, Idea, Vodafone and DoCoMo respectively.

4.4.10: Regression Statistics for Impact of Post-paid Plans on Company Selection at Franchises

Model Summary					
Company	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Airtel	1	.759[a]	.576	.506	3.63278
Idea	1	.738[a]	.544	.468	.54273
Vodafone	1	.795[a]	.633	.571	2.52172
DoCoMo	1	.883[a]	.780	.744	2.82098

In the case of Airtel, Idea, Vodafone and DoCoMo corresponding squared multiple correlations are 0.576, 0.544, 0.633 and 0.780 which implies that postpaid plans explains 57.6, 54.4, 63.3 and 78 percent of its variance on selection of service provider respectively. The model is significant at the 0.05 level of significance.

4.4.11: ANOVA statistics for level of Post-paid plans on company selection at Franchises

ANOVA							
Company	Model		Sum of Squares	df	Mean Square	F	Sig.
Airtel	1	Regression	107.692	1	107.692	8.160	.029[a]
		Residual	79.183	6	13.197		
		Total	186.875	7			
Idea	1	Regression	2.108	1	2.108	7.156	.037[a]
		Residual	1.767	6	.295		
		Total	3.875	7			
Vodafone	1	Regression	65.721	1	65.721	10.335	.018[a]
		Residual	38.154	6	6.359		
		Total	103.875	7			
DoCoMo	1	Regression	169.752	1	169.752	21.331	.004[a]
		Residual	47.748	6	7.958		
		Total	217.500	7			

Table 4.4.12: Regression coefficient of post-paid plans vs. company selection at Franchises

Coefficients[a]							
company	Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			B	Std. Error	Beta		
Airtel	1	(Constant)	41.048	6.062		6.772	.001
		Postpaid Plan	-.769	.269	-.759	-2.857	.029
Idea	1	(Constant)	23.703	1.536		15.428	.000
		Postpaid Plan	-.158	.059	-.738	-2.675	.037
Vodafone	1	(Constant)	42.949	6.154		6.979	.000
		Postpaid Plan	-.875	.272	-.795	-3.215	.018
DoCoMo	1	(Constant)	-17.830	8.413		-2.119	.078
		Postpaid Plan	1.816	.393	.883	4.619	.004

The corresponding regression weight estimate for Airtel, Idea, Vodafone and DoCoMo is 0.769, 0.158, 0.875 and 1.816 with a standard error of about 0.269, 0.059, 0.272 and 0.393 respectively. For all the four service providers, i.e., Airtel, Idea, Vodafone and DoCoMo, the regression weight for post-paid plans in the prediction of store choice is significantly different from zero at the 0.005 level. The regression equation for the predictor postpaid plans will be different for all the four service providers:

- Airtel: CS = 41.048 + 0.769 × PP
- Idea: CS = 23.703 + 0.158 × PP
- Vodafone: CS = 42.949 + 0.875 × PP
- DoCoMo: CS = 17.830 + 1.816 × PP

From the results, it can be concluded that if the company offers good postpaid plans then the chances of selection of particular service provider will also increase.

4.5. Objective- 4

To study the impact of Customer Care and Value added services on selection of TSPs

4.5.1. Customer Care Services

H5: Customer care services have significant effect on selection of Telecom Service Providers.

The Regression Analysis was carried out know the effect of customer care services have effect on selection of the Telecom Service Providers (TSPs). The prediction model was found statistically significant, F (1, 58)=73.551;P<0.001, and was accounted for approximately 43 percent of the variance in selection of TSPs (R^2=0.661, adjusted R^2=0.436). It means the predictor variable, i.e., customer care services was able to explain 43 percent of total variance of the dependent variable, i.e., selection of TSPs.

Table 4.5.1: Regression Model Summary for Customer Care

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.661[a]	.436	.427	1.007

a. Predictors: (Constant), Customer Care

For a good model fit, the difference between R^2 and adjusted R^2 should not be more than 0.05. It has been achieved (R^2 – adjusted R^2= 0.009 which was lesser than 0.05) for this study. A 66 percent (R=0.66) of correlation exists between the observed and predicted values of dependent variable. The summary of the regression model was presented in Table 4.5.1. The ANOVA table shows the model as significant at the 0.000 level (see Table 4.5.2).

Table 4.5.2: ANOVA for Customer Care

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	45.535	1	45.535	44.916	.000[b]
	Residual	58.798	58	1.014		
	Total	104.333	59			

a. Dependent Variable: Selection of TSP

b. Predictors: (Constant), Customer Care

Standardized regression weights were considered as parameters estimates for this study because all the items were measured on the same scale. The t-values was found statistically significant (t= 6.70 ;P<0.01) with a regression coefficient of 0.812. Results were shown in Table 4.5.3.

Table 4.5.3: Regression Coefficientsfor Customer Care

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.896	.317		2.828	.006
	Customer Care	.608	.091	.661	6.702	.000

a. Dependent Variable: Selection of TSP

Since the standardized coefficient was significant, H5 was accepted and can be concluded that customer care services has significant effect on selection of TSPs.

To evaluate the impact of customer care services in selection of service provider, regression analysis is carried out using data collected from distributors. It is evident from the correlation that the factor is significantly correlated with company selection.

Table 4.5.4: Regression Statistics for Impact of Customer Care Services on Company Selection at Distributors

Model Summary					
Company	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Airtel	1	.637[a]	.406	.332	3.117
Idea	1	.789[a]	.623	.576	1.479
Vodafone	1	.740[a]	.547	.491	1.387
DoCoMo	1	.817[a]	.667	.625	1.391

It can be seen from the Model Summary that correlation is high between company selection and customer care services which is .637, 0.789, 0.740 and 0.817 for Airtel, Idea, Vodafone and DoCoMo respectively. For Airtel independent variable is explaining only 40.6 percent, for Idea 62.3 percent, in case of Vodafone 54.7 and for DoCoMo is 66.7 percent variance in company selection. Adjusted R square value is close to R square value which is indicating that model is closely fit with responses of the population.

4.5.5: ANOVA statistics for level of Customer Care Services on company selection at Distributors

ANOVA							
Company	Model		Sum of Squares	Df	Mean Square	F	Sig.
Airtel	1	Regression	53.169	1	53.169	5.472	.047[a]
		Residual	77.731	8	9.716		
		Total	130.900	9			
Idea	1	Regression	28.900	1	28.900	13.211	.007[a]
		Residual	17.500	8	2.188		
		Total	46.400	9			
Vodafone	1	Regression	18.615	1	18.615	9.680	.014[a]
		Residual	15.385	8	1.923		
		Total	34.000	9			
DoCoMo	1	Regression	31.020	1	31.020	16.032	.004[a]
		Residual	15.480	8	1.935		
		Total	46.500	9			

To check the accuracy ANOVA table is shown the regression statistics is significant and well below than .05 implies the test is accurate. The F value is 5.472, 13.211, 9.680 and 16.032 at 1, 8 degree of freedom for Airtel, Idea, Vodafone and DoCoMo respectively. These values are significant at 0.05 level of significance, thusvalidating the whole model.

Table 4.5.6: Regression coefficient of Customer Care Services vs. company selection at Distributors Data

Coefficients							
Company	Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			B	Std. Error	Beta		
Airtel	1	(Constant)	2.423	7.536		.322	.756
		Customer Care Services	.615	.263	.637	2.339	.047
Idea	1	(Constant)	51.000	8.432		6.049	.000
		Customer Care Services	-1.063	.292	-.789	-3.635	.007
Vodafone	1	(Constant)	11.903	2.957		4.026	.004
		Customer Care Services	.351	.113	.740	3.111	.014
DoCoMo	1	(Constant)	9.067	2.152		4.214	.003
		Customer Care Services	.301	.075	.817	4.004	.004

Model came out to calculate the effect level of customer care services on the selection of service provider from coefficient table for all four service providers with varied values that is;

Airtel : $CS = 2.423 + 0.615 \times CC$

Idea : $CS = 51.000 + (-1.063) \times CC$

Vodafone : $CS = 11.903 + 0.351 \times CC$

DoCoMo : $CS = 9.067 + 0.301 \times CC$

Assumption from the table is that because p value is less than .05 the fit model is significant and the customer care services provided by companies has significant impact in determining the choice of service provider/company, specifically good customer care services positively influence chance for service provider to be selected.

4.5.2. Value Added Services

Literature reveals that value added service has an impact on selection of mobile operator. In order to determine the role of VAS in making a choice for a particular Service provider, the data gathered from distributors is analysed.

H6: Value Added Services have significant effect on selection of Telecom Service Providers.

The Regression Analysis was carried out know the effect of value added services on selection of Telecom Service Providers (TSPs). The prediction model was found statistically significant, $F(1, 58)=26.7; P < 0.001$, and was accounted for approximately 31 percent of the variance in selection of TSPs ($R^2=0.315$, adjusted $R^2=0.304$). It means the predictor variable, i.e., value added services was able to explain 31.5 percent of total variance of the dependent variable, i.e., selection of TSPs

Table 4.5.7: Model Summary for Value Added Services(VAS)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.562[a]	.315	.304	1.110

a. Predictors: (Constant), Value Added Services(VAS)

For a good model fit, the difference between R^2 and adjusted R^2 should not be more than 0.05. It has been achieved (R^2 – adjusted R^2= 0.011 which was lesser than 0.05) for this study. A 56 percent (R=0.562) of correlation exists between the observed and predicted values of dependent variable. The summary of the regression model was presented in Table 4.5.7. The ANOVA table shows the model as significant at the 0.000 level (see Table 4.5.8).

Table 4.5.8: ANOVA test for Value Added Services(VAS)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	32.908	1	32.908	26.723	.000[b]
	Residual	71.425	58	1.231		
	Total	104.333	59			

a. Dependent Variable: Selection of TSP

b. Predictors: (Constant), Value Added Services(VAS)

Standardized regression weights were considered as parameters estimates for this study because all the items were measured on the same scale. The t-values was found statistically significant (t= 5.16 ;P<0.01) with a regression coefficient of 0.812. Results were shown in Table 4.5.9.

Table 4.5.9: Regression Coefficientsfor Value Added Services(VAS)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.352	.320		4.220	.000
	Value Added Services(VAS)	.532	.103	.562	5.169	.000

a. Dependent Variable: Selection of TSP

Since the standardized coefficient was significant, H6 was accepted and can be concluded that value added services has significant effect on selection of TSPs.

The correlation results in the Table 4.5.10 shows that there is high positive correlation between value added services and company selection. Coefficient is being 0.899, 0.721, 0.755 and 0.741 for Airtel, Idea, Vodafone and DoCoMo. This relationship is ground to analyse the strength of relationship. Further to validate the hypothesis that VAS has impact on selection of service provider, for this regression analysis is carried out.

4.5.10: Regression analysis for impact of VAS on selection of Mobile Operators at Distributors Data

Model Summary					
Company	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Airtel	1	.899[a]	.809	.785	1.992
Idea	1	.721[a]	.520	.460	1.668
Vodafone	1	.755[a]	.569	.516	1.353
DoCoMo	1	.741[a]	.549	.493	1.618

It can be seen from the result table 5.42 that correlation is high between VAS and selection of mobile operator, R square values being 0.809 for Airtel, 0.520 for Idea, 0.569 for Vodafone and 0.549 for DoCoMo, and thus it explains 80.9, 52, 56.9 and 54.9 percent of variance in selection of mobile operator for Airtel, Idea, Vodafone and DoCoMo respectively. Adjusted R square value is close to R square value which indicates that the model closely fits the responses of the population.

Table 4.5.11: ANOVA statistics for level of VAS on company selection at Distributors

ANOVA							
Company	Model		Sum of Squares	df	Mean Square	F	Sig.
Airtel	1	Regression	134.356	1	134.356	33.860	.000[a]
		Residual	31.744	8	3.968		
		Total	166.100	9			
Idea	1	Regression	24.143	1	24.143	8.678	.019[a]
		Residual	22.257	8	2.782		
		Total	46.400	9			
Vodafone	1	Regression	19.360	1	19.360	10.579	.012[a]
		Residual	14.640	8	1.830		
		Total	34.000	9			
DoCoMo	1	Regression	25.545	1	25.545	9.753	.014[a]
		Residual	20.955	8	2.619		
		Total	46.500	9			

The regression values and F values of all four mobile operators for value added services in the prediction of selection of mobile operator/service provider/company selection is significantly different from zero at the 0.001, 0.019, 0.012 and 0.014 significance level which is well below the definite ‘p-value (0.05) implying that the test is accurate.

Table 4.5.12: Regression coefficient of Value Added Services vs. company selection at Distributors

Coefficients							
Company	Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			B	Std. Error	Beta		
Airtel	1	(Constant)	5.572	2.342		2.379	.045
		Value Added Services	.559	.096	.899	5.819	.000
Idea	1	(Constant)	31.543	3.819		8.259	.000
		Value Added Services	.464	.158	.721	-2.946	.019
Vodafone	1	(Constant)	10.880	3.141		3.464	.009
		Value Added Services	.440	.135	.755	3.253	.012
DoCoMo	1	(Constant)	10.442	2.317		4.506	.002
		Value Added Services	.295	.095	.741	3.123	.014

To calculate the effect of value added services on selecetion of mobile operator, the model can be framed from the coefficient table for all four service providers are as follows:

- Airtel : CS =5.572 + 0.559 × VAS
- Idea : CS = 31.543+ 0.464 × VAS
- Vodafone : CS = 10.880 + 0.440 × VAS
- DoCoMo : CS = 10.442 + 0.295 × VAS

Result is significant because p-value is less than 0.05 and value added service has a significant impact in determining the choice of mobile operator.

4.6. Objective 5

To find the best mobile operator in Andhra Pradesh

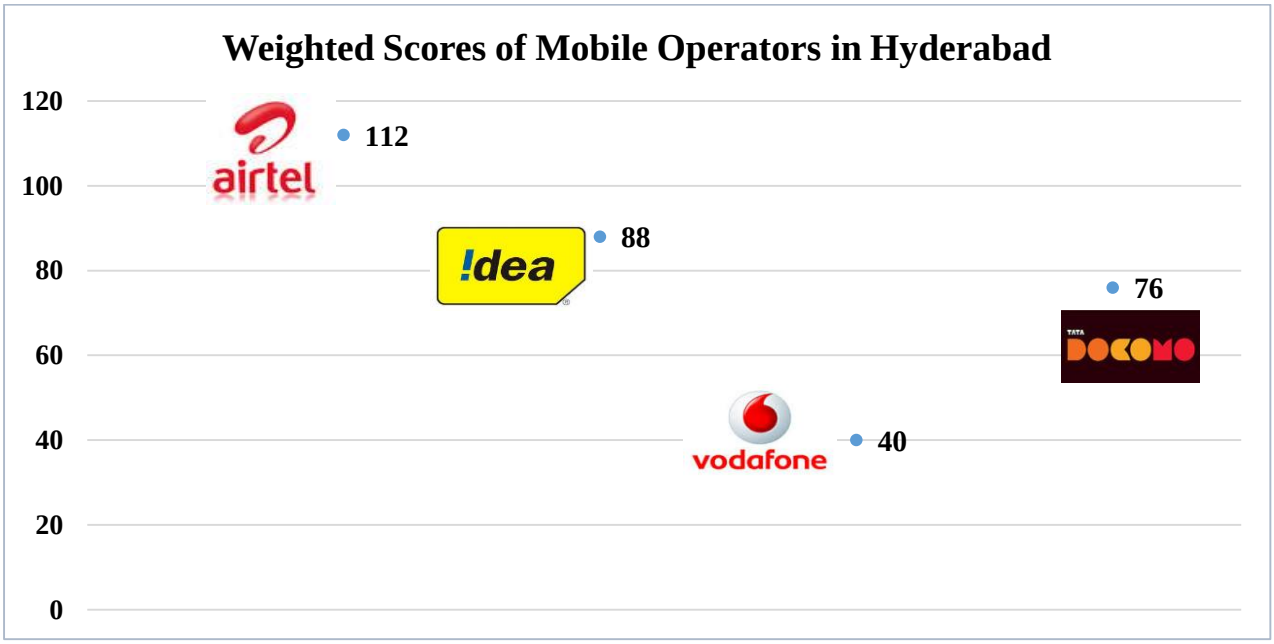
4.6.1. Best mobile operator in Hyderabad

An attempt was made to find out the best mobile operator in Hyderabad. Respondents (retailers) were requested to rank their preferred choice of brand on 4 point ranking scale. A total of 120 respondents have given their preference in the form of ranks. Then ranks were analysed by assigning them respective weightages by multiplying with number of responses. It was found that Airtel was given score of 112, Idea was given a score of 88, Vodafone was given a score of 40 and DoCoMo was given a score of 76. Based on these score final ranks were assigned in ascending order of scores.

Table 4.6.1: Ranking of Mobile operators in Hyderabad

Hyderabad		Ranks								Total Weighted Score	Rank
		R1	Weighted Score	R2	Weighted Score	R3	Weighted Score	R4	Weighted Score		
Company	Airtel	22	88	8	24	0	0	0	0	112	1
	Idea	4	16	20	60	6	12	0	0	88	2
	Vodafone	0	0	2	4	8	16	20	20	40	4
	DoCoMo	4	16	8	24	18	36	0	0	76	3
Total		30		38		32		20		120	

Among all these TSPs, Airtel was chosen as the most preferred choice of mobile operator in Hyderabad with a score of 112, then Idea has been occupied the second rank by scoring next highest score of 88. DoCoMo and Vodafone were placed in third and fourth position with the scores of 76 and 40 respectively.



4.6.2. Best Mobile operator in Vishakhapatnam

An attempt was made to find out the best mobile operator in Vishakhapatnam. Respondents were requested rank their preferred choice of brand on 4 point ranking scale. A total of 60 respondents have given their preference in the form of ranks. Then ranks were analyzed by assigning them respective weightages by multiplying with number of responses. It was found that Airtel was given a score of 21, Idea was given a score of 28, Vodafone was given a score of 52 and DoCoMo was given a score of 47. Based on these score final ranks were assigned in ascending order of scores.

Table 4.6.2: Ranking of Mobile operators in Vishakhapatnam

Vishakhapatnam		Ranks								Total Weighted Score	Rank
		R1	Weighted Score	R2	Weighted Score	R3	Weighted Score	R4	Weighted Score		
Company	Airtel	10	10	4	8	1	3	0	0	21	1
	Idea	4	4	9	18	2	6	0	0	28	2
	Vodafone	1	1	1	2	3	9	10	40	52	4
	DoCoMo	0	0	2	4	9	27	4	16	47	3
Total		15		16		15		14		60	

4.7. Results of Hypotheses

Table 5.1 Results of Hypotheses

SN	Hypotheses	Results
Hypothesis 1	Higher retailer coverage results into higher sales for Telecom Service Providers (TSPs).	Accepted
Hypothesis 2	There is a significant difference in the sales of different service providers.	Accepted
Hypothesis 3	Prepaid plans have a significant effect on selection of Telecom Service Providers (TSPs).	Accepted
Hypothesis 4	Post-paid paid plans have significant effect on selection of Telecom Service Providers (TSPs).	Accepted
Hypothesis 5	Customer care services have significant effect on selection of Telecom Service Providers.	Accepted
Hypothesis 6	Value Added Services have significant effect on selection of Telecom Service Providers.	Accepted

5. Conclusions

5.1. Hyderabad/Secunderabad

Final Conclusions – Objective wise (Hyderabad/Secunderabad)					
Parameters Identified & suggested to customers	Key Indicators	Rank1	Rank2	Rank3	Rank4
Network Coverage	❑ MHz frequency Band ❑ No of base stations	Idea	Airtel	Vodafone	DoCoMo
Retail Coverage	❑ - Number of retailer outlets covered	Airtel	Idea	Vodafone	DoCoMo
Prepaid sale	❑ Highest prepaid sales	Airtel	Idea	DoCoMo	Vodafone
Postpaid sale	❑ Highest Post Paid sale ❑ Franchisee outlets no.	Airtel	Idea	DoCoMo and Vodafone	-
Preferred Company		Airtel	Idea	DoCoMo	Vodafone
Customer Care Services	❑ Customer care service perception ❑ Customer care outlets	Idea	DoCoMo	Airtel	Vodafone
Value added services	❑ - Range of VAS offered at reasonable prices	Idea	Vodafone	Airtel	DoCoMo

5.2. Vishakhapatnam

Final Conclusions – Objective wise (Vishakhapatnam)					
Parameters Identified & suggested to customers	Key Indicators	Rank1	Rank2	Rank3	Rank4
Network Coverage	❑ MHz frequency Band ❑ No of base stations	Idea and Airtel	Vodafone	DoCoMo	--
Retail Coverage	❑ - Number of retailer outlets covered	Airtel	Idea	Vodafone	DoCoMo
Prepaid sale	❑ Highest prepaid sales	Airtel	Idea	Vodafone	DoCoMo
Postpaid sale	❑ Highest Post Paid sale ❑ Franchisee outlets no.	Idea	Airtel	DoCoMo	Vodafone
Preferred Company		Airtel	Idea	Vodafone	DoCoMo
Customer Care Services	❑ Customer care service perception ❑ Customer care outlets	Idea	Airtel	DoCoMo	Vodafone
Value added services	❑ - Range of VAS offered at reasonable prices	Airtel	Idea	DoCoMo	Vodafone

6. Managerial Implications

- Need to educate customers on Network issues and build trust by being transparent. Customers gained by huge promotions but weaker network will not stay for long and this will be hugely detrimental to the concerned TSP by way of negative word of mouth

- Need to make investments in Network by installing base stations for adequate coverage. The investment in promotions and celebrity endorsements should start only ensuring basic network infrastructure.

- Need for availability in all areas having significant population so that no customer has to travel more than a km to get recharge.
    - Quite a few TSPs focus hugely on ensuring availability in mobile hubs/zones overlooking the fact the over- availability in mobile zones will not lead to Sale increase (one Finding of our research).

- One bad experience at the customer care centre leads to manifold decline in brand value but still it is one of the most neglected aspect of the business for TSPs. Need to invest in smaller formats of Care centres so that their reach increases

- Value Added Services are the engine for future growth for Telecom and the TSPs need to invest in consumer studies on what are the most desirable VAS & their price points.
- Customers should be given flexibility to choose between data & voice plans. Sharing should be possible also

- Advanced analytics: multiple cases of escalation of 'call drop issues', going on for months. TSPs must be in a position to assess the health of their networks, measure the quantum of call drops and address them accordingly.

7. Scope for further research

- This study can be further carried out after a year taking the impact of 4G into consideration

- Further studies can be carried out for comparing other service providers also

- Comparative study can be carried out using other variables such as internet and celebrity endorsement for their impact in selecting service provider.

- Study can be extended in terms of geographical boundaries by adding other states or cities

7.1. Limitation of Study

- Study limited to four companies of mobile operators

- Study done in just Hyderabad & Vishakhapatnam

Bibliography

Abraham Karimpanal, (2003). The Mobile Customer Retaining customer loyalty in mobile telephony, [online], available on : < http://economictimes.indiatimes.com/the-mobile-customer-retaining-customer-loyalty-in-mobile-telephony/articleshow/40164559.cms> , [Accessed on 25/09/2011]

Agarwal Pradeep, (1999). Comparison of customer satisfaction level of RIN) and Reliance Telecom Customer's, Unpublished major project Report, PIMR. lndtwe.

AhasanulHaque, Sabbir Rahman, MahbuburRahman(2010). Factors Determinants the Choice of Mobile Service Provider, *Business and Economics Research Journal*, Vol 1 (3), pp 17-34

Amjad Iqbal, Mubashar Hassan Zia and others, (2011). Antecedents and Outcomes of Customer Satisfaction in using Prepaid Cellular Service in Pakistan ,[online], available on : http://www.wbiconpro.com/ Marketing/503-Iqbal,A%20&%20Others.pdf , [Accessed on 08/06/2015]

Amulya.M &Prof. D. Anand (2012).Demographic Trends in Indian Telecom sector – A study from the perspective of Customers of Select Telecom service providers in Mysore City. *Indian Journal of Research*, 1(12), 148-151.

Anita Seth Kiran Momaya and H.M. Gupta, (2005).An Exploratory Investigation of Customer Loyalty and Retention in Cellular Mobile Communication**,** *Journal of Services Research*, Special Issue, (December, 2005), pp 173-18.

BamhoomC. (2006), Customer satisfaction increases in the Telecommunications industry. *Synorate Research Rinested*.

Cellular Operators Association of India (COAI) Report year 2011.

Chintan Shah, (2012). Consumer Preferences for Mobile Service Providers: An Empirical Study in Bardoli, *International Journal of Marketing and Technology*, Vol 2 (8), pp 268-288.

Creswell, J.W. (2003). Research Design: qualitative, quantitative and mixed methods approaches. Thousand Oaks: Sage Publications.

Daniel Birke, Peter Swann, Published online: 17 November 2005; © Springer-Verlag 2005

Daymon C., & Holloway, I. (2002).Qualitative Research Methods in Public Relations & Marketing Communications. London, UK: Routledge

De Vaus, D. A. 2001.*Research design in social research*. London: SAGE

Debrun Chakraborty, (2013). Customer Satisfaction and Expectation Towards Aircel: A Research conducted in West Midnapore ,Abinav , International Monthly Refereed *Journal of Research In Management & Technology* , Abhinav Volume II, Jan-13 ,Page No 114-127.

Dinesh Kamath, (2011). A critical evaluation of customer satisfaction of cellular phone services in Pune, Submitted for PhD degree to the Symbiosis International University, Pune, [online],

available on : http:// shodhganga.inflibnet.ac.in/handle/10603/8516 [Accessed on 10 /04/2015].

Dinesh Kumar Pandiya, Dr.Brajesh kumar, MazahidulHaque Choudhury (2014), A Study of Customer satisfaction on Telecom Service Providers, *Indian journal of research*, Volume : 3 | Issue : 5 , 57-60)

Eisenhard (1989), K.M. Agency theory: an assessment and review. Academy of Management Review, Vol. 14, No. 1, 1989, pp 57-74.

Eshghi et al.(2008) AbdolrezaEshghi et al. (2007), "Determinants of Customer Loyalty in the Wireless Telecommunications Industry", *Telecommunications Policy*, 31, pp. 93-106.

G. N. Satish Kumar, (2011) Factors Influence Mobile Users In Selecting Cellular Service Providers in India : An Empirical Study Based On Structured Equation Model, *International Journal of Research in Commerce and Management* , Volume No2, 2011, Issue 6 (June)

Gerpott, T. J., Rams, W., & Schindler, A. (2001). Customer retention, loyalty, and satisfaction in the German mobile cellular telecommunications market.*Telecommunications policy*, *25*(4), 249-269.

Girish Taneja and Neeraj Kaushik (2007).customer perception towards mobile service providers; An analytical overview, *The IUP Journal of services marketing*, pp.14.

Gupta Aparajita, (2015).Spectrum demystified: Going into the 'hertz' of the matter**,** IANS, New Delhi

Hague, Hague & Morgan (2004). Market Research in Practice. London, United Kingdom: Kogan Page.

Hair, J. F., Babin, B., Money, A. H., &Samouel, P. (2003).*Essentials of Business Research Methods* (International ed.). Hoboken, New Jersey: Wiley.

Henkel and Honchaime (2002),"The impact of emerging WLANS an Incumbent cellular service Providers in the US,

Hiren J. Patel, JigarMakwana and Shailesh Desai, (2011). An Empirical study on Factors Considered by Potential Users of 3G Mobile Services, Marketing Mastermind, Vol. XI, Page No. 42-55.

Jain, R. (1997). Operationalizing a Regulatory Framework in India. *Vikalpa*, *22*, 29-38.

Jean Lam, Susy S. Chan, Xiaowen Fang and Jacek Brzezinski, (2004).Proposed Research Model for Customization and Satisfaction with Mobile Commerce, [online], available on : <facweb.cs.depaul.edu/research /techreports/tr04-009.doc>, [Accessed on 18/06/2015]

JoseeBloemer,Ko de Ruyter and Martin Wetzels, (1998). Customer Loyalty in a Service Setting, *European Advances in Consumer Research*, Volume 3, pp 162-169

Kalavani (2006), "To study the gap between service promised and service offered by service provider".

Karen G. Strouse© 2004 ARTECH HOUSE, INC. Customer-Centered Telecommunications services marketing

Khan, Aisha; and Chaturvedi, Ruchi.(2006), "Promotional Strategies of Mobile Phone Service Providers in India", *ICFAI Journal of Management Case Studies*, Vol. VI, No. 2, February.

KiseolYang , Laura D. Jolly (2006), value-added mobile data services: the antecedent effects of consumer value on using mobile data services, *International Journal of Mobile Marketing*, VOL. 1 (2)

Kothari, C. R. (2004). *Research methodology: Methods and techniques*. New Age International.

Krejicie, Robert V., Morgan, Daryle W., "Determining Sample Size for Research Activities", Educational and Psychological Measurement, 1970

L.Santhana Raj and A. Anandaraj,(2014).Consumer Preference and Satisfaction Towards Mobile Phone Service in Pondicherry Town, *Ge-International Journal of Management Research*, Vol 2 (9), pp 1-10.

Lim. H, and Widdows (2006), "M — Loyalty: sinnìngstratcgics for mobile carriers", journal of consumer marketing. 23 4), pp: 208- 218

M.Muthuswami, Dr.Thangavel and Dr.Y.L.chaudhari (2007) ,Consumer Preference on Mobile Connections and buyer behavior Towards Relaince Mobile in Chennai City , Journal of Contemporary Research in Management, July-December-2007,Page No.89-101

Makam S. Balaji, (2009). Customer Satisfaction with Indian Mobile Services, The IUP Journal of Management Research, Vol. VIII, Pp 52 – 62

Malhotra Gunjan, Mukherjee Amitava, Nandi Abhishek and SinharaySoumyadeep (2011) , Consumer Behaviour towards Mobile Phone Service Provider- An Empirical Research on Mobile Number Portability in India , Advances in Management , Issue-June 2011 , Page No. 44-47

Malhotra N. K.,& Birks D. F. (2000). *Marketing Research: An Applied Approach. (European ed.)*. Harlow: Pearson Education

Maylor. H. &Blackmo, K. (2005). Researching Business and Management, Basingstoke Palgrave Macmillan.

McCutcheon, D. M., & Meredith, J. R. (1993).Conducting case study research in operations management. *Journal of Operations Management*, *11*(3), 239-256.

Melody .W.H. (1994). The information society; implications for economic institutions and market theory, *In E Comer (ed) , The global political economy of communication*, pp.21-36.

Miettila, A. and Moller, K. (1990). Interaction perspective into professional business services: a conceptual analysis, paper presented at the *Research Development on International Industrial Marketing and Purchasing, Milan*

Molapo, M. Elizabeth., &MukwadaGeoffrey, (2014).Does Customer Retention Strategies Matter in the South African Cellphone Industry?,*Mediterranean Journal of Social Sciences*, *5*(23), 144-151.

Muhammad Mohsin Butt & Ernest Cyril de Run, (2009).Modeling customer satisfaction in cellular phone services , *Journal Kemanusiaanbil*, 13, Issue -2009, [online], available on : < http://www.fppsm.utm.my/download /doc_view/24-modeling-customer-satisfaction-in-cellular-phone-services.htm> [Accessed on 08/06/2015]

Myers, M.D. (2009), Qualitative Research in Business and Management, Sage Publications Ltd: London.

N.P. Singh and R.K. Gupta, "Use of Data Mining Tools", Effective Executive, Nov. 2004, pg. 59-67.

National Telecom Policy (NTP) of India (2012), No. 2-8/2012, Policy-I, Government of India, Ministry of Communication & IT, Department of Telecommunications, New Delhi, dated 13/06/2012

Newman, I., & Benz, C., (1998). Qualitative –Quantitative Research Methodology: exploring the Interactive Continuum, Pearson. (Groenewald, 2004)

OfirTurel and Alexander Serenko (2006). Satisfaction with mobile services in Canada: An empirical investigation , Telecommunications Policy 30, 314–331 [online] available on : < ww.sciencedirect.com>,

Piotr Rzepakowski (2008),Supporting telecommunication product sales by conjoint analysis, *Journal of Telecommunication and Information Technology*, Issue No. 3, [online] , available on : http://dlibra.itl.waw.pl /dlibra-webapp/Content/197/JTIT-2008_3_28.pdf [accessed on 12 Jan 2012

PrasannaKumar.M.G and Dr. Y M Raju 2014, Customer Satisfaction of Mobile Users: An Empirical Study http://isindexing.com/isi/papers/1413017756.pdf

RajkumarPaulrajan and Harish Rajkumar, (2011).Service Quality & Customers Preference of Cellular Mobile Service Providers , Journal of Technology Management & Innovation , Volume 6 (1) pp. 38-45 , [online], available on : <http://www.scielo.cl/pdf/jotmi/v6n1/art04.pdf > [Accessed on 27/ 02/ 2015]

Rajpurohit.R. C. S. and Vasita. M.C (2011), consumer preferences and satisfaction towards Various mobile phone service providers: An Exploratory Study in Jodhpur City, Rajasthan, *Gurukul Business Review*, Vol 7, pp 1 — 1 1

Rakesh Kumar Sharma & R.K. Yadav, (2007).Reforms in Indian Telecom Sector, [online], available on : http://www.indianmba.com/Faculty Column /FC701/fc701.html [Accessed on 08/06/2015]

S. K. Chadha and Deepa Kapoor (2009), Effect of Switching Cost, service Quality and Customer Satisfaction on Customer Loyalty of Cellular Service Providers in Indian Market, The *ICFAI University Journal of Marketing Management*, Vol VIII, Page 24-29

S. S. Agarwal, (2009). Brand Ambassadors And Their Impact On Consumer Behaviour: A case Study Of Mobile Companies In India , Indian Journal of Marketing, December 2009 issue, Page No 3-8

Sabbir Rahman, AhasanulHaque and Mohd Ismail Sayyed Ahmad, (2011). Choice Criteria for Mobile Telecom Operator: Empirical Investigation among Malaysian Customers, *Communications of the IBIMA*, Vol. 3, Page No.18-24 ,

Sandhya Joshi, ParveenKhurana and Shashi Khurana, (2010). Service Quality in Telecom Sector – A study of Telecom Service Providers of Chandigarh, Panchkula and Moholi, *International Journal of Management Marketing research,* Vol.1 (1) Page No. 90 -98

Saunders, M., Lewis, P. & Thornhill, A. (2000).Research Methods for Business Students. (2nd ed). Harlow, UK: Pearson Education Limited.

Saunders, M., Lewis, P. and Thornhill, A. (2007).*Research Methods for Business Students(4th edition).* Harlow, UK: Prentice Hall.

Saunders, M., Lewis, P., & Thornhill, A. (2003).*Research methods for business students.*England:Prentice Hall.

Saxena, S.D. (1997). Financing of Indian Telecom in a Competitive Environment, *Vikalpa*, 22(3), 65-69

Seema Gupta,Tejas Dave, Maria Cheryl Fernandez, Akhil Gupta, Pulkit Jain and T Srirathivarman(2009),Telecom Industry Pricing : Who is Eating into whose share, [online], available on : http://tejas.iimb.ac.in/articles/62.php [Accessed on 08/06/ 2015]

Sekaran U. (2003).*Research methods for business: A skill building Approach (4th ed.)* .New York,

Shahzad Khan and SaimaAfsheen, (2012).Determinants of Customer Satisfaction in Telecom Industry A Study of Telecom industry Peshawar KPK Pakistan ,Journal of Basic and Applied Scientific Research, Vol. 2 (12), pp 12833-12840

Shanthi N. M. (2005), "Indian Telecom: Growth and Transition", *Business Today*, January 2

ShikhaOja (2009), "Customer awareness of VAS of telecom sector of India", The ICFAI University, Journal of Infrastructure,pp;1-14.

Shymal Ghosh (2003), "The Resurging Telecom Sector", *pib.nic.in*, April.

Sourabh P Chowdhuri and Shilpa K. Bendale (2013),When Mumbai Shifts Loyalties (A Scenario Of Mumbai Telecom Market) , Spectrum: A Journal of Multidisciplinary Research Vol.2 Issue 2, February 2013, Pp 36-45 , [online] , available on : http://www.pinnaclejournals.com /setup/socialscience/paper48.pdf, [Accessed on 6 May 2013

SulekhaMunshi, (2011). Expectations And Perceptions Of Mobile Phone Users ,*International Journal of Asian Social Science*, 1(1), pp.10-16.

T.V.Ramchandran (2005), Director-Genaral, Cellular operators association of india, Trends and Development, may-15, 2005.

Telecom Sector in India-Report (2015), Corporate Catalyst (India) Pvt. Ltd. New Delhi

Thomas K. Thomas (2012), Why 900 Mhz band is superior than 1800 Mhz band. Business Line, The Hindu, Dated October 18, 2012

USA: Wiley. Kumar, R. (1999). Research Methodology. London, UK: Sage Publications LTD.

Vaibhav Misra and DR. R.K shukla (2011).The study of relationship between reasons of churn outs in telecom sector in rural markets of lucknow district, *Indian Journal of Research,* Vol. **5**, pp 35-40

VikasGautam and Mukund Kumar (2011). An Empirical Investigation of Factors Determining the Consumers' Choice of Mobile Service Providers, *İşletmeAraştırmalarıDergisi,* Vol. 3 (4), pp 3-17

Vipan Bansal and Bindu Bansal (2013), A Study on Customer Satisfaction of Mobile Phone Service Users Operating in the Malwa Region of the Punjab, *ABAC Journal*, Vol. 33 No. *3, pp.30-40*

ViratBahri (2006), "The Database Revolution," Target Marketing, May, pp. 14-18.

Walters (2003) Stephen M. Watters, The New Telephony – Technology, Convergence, Industry Collision, Prentice Hall PTR, NJ07458.

Wiedeirsheim-Paul, F. & Eriksson, L.T. (1989).*To Investigate and Report,* (Unknown Publisher)

Working Report on the Telecom Sector for the 12th Plan (2012-2017)

Yi Hao, Xiaoqin Yuan and Weiqing Zhang (2009) , How to promote Loyalty Of Chinese Mobile operator, [online], available on : www.bth.se/fou/cuppsats.nsf/0/3dae4fb1399cd1e8c125765f0044a7c5> [Accessed on 08/06/2015]

Yin, K. R. (2003).*Case study research: Design and methods (3rd ed.)*. California, USA

Yin, R. K. (Eds.). (1994). *Case study research: Design and methods.* Thousand Oaks, IL,

Zainurin Bin Dahari, Muhammad Sabbir Rahman and S.M. FerdousAzam (2011), Customer Satisfaction with Mobile Phone Operators: An Exploratory study In Kuala Lumpur, Malaysia, Indian Journal of Marketing, Issue May 2011, Page No 39-46.

Zikmund W. G. (2000). Business Research methods, (6th ed). Fort Worth, Texas, USA: Dryden

Web sources and Reports

1. www.airtel.in
2. www.airtel.com
3. www.bharti.com

4. Bharti Airtel; case 1-428-834 Published by GlobaLens, a division of the William Davidson Institute at the University of Michigan. revised January 3, 2013

5. Bharti Airtel Ltd., Quarterly report on the results for the fourth quarter and year ended March 31, 2015

6. Bharti Airtel Financial Statement 2014

7. Bharti Airtel Limited, Annual Report 2013-14

8. Stock Idea – Bharti Airtel Ltd.(2011), Bajaj Capital Centre for Investment Research, Vol 6, pp 11-12

9. Idea Cellular limited, Quarterly Report – Fourth Quarter Ended March 31, 2015

10. Tata Teleservices Limited, Company Profile dated 14/01/2010, Retrieved on May 31, 2015

11. Tata DOCOMO, Annual Report, 2015.

12. www.tatacommunications.com

13. Tata Communications, Annual Report, 2014

14. www.ideacellular.com

15. Idea Cellular Limited, Annual Report: Staying focused delivering performance, 2014

16. Idea Cellular Limited, Quarterly Report – Third Quarter Ended December 31, 2013.

17. www.vodafone.in

18. Vodafone India Full Year FY13 Results, News Release Delhi, May 21, 2013